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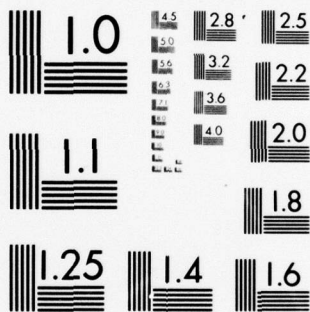
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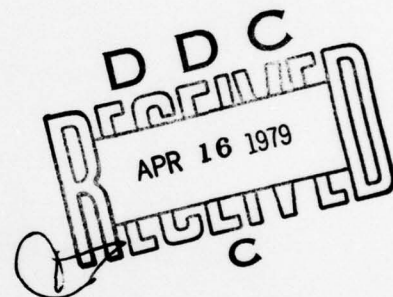
A CASE STUDY OF THE NEPCO 140 INCIDENT
THE ST. LAWRENCE RIVER
JUNE 1976

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State University of New York Research Foundation
State University College at Potsdam
Potsdam, New York



April 1978

FINAL REPORT



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12 16. Abstract The methodology sociologists have developed for natural disaster research is applied to a large pollution event. Questionnaires, interviews, and documentary fieldwork in the riparian communities on the U.S. side of the St. Lawrence River between Mason's Point, Jefferson County, New York, and Massena, St. Lawrence County, New York, provide the data. Conditions before the pollution event are reviewed for their influence on the emergency behavior of citizens. The public's immediate reaction to the spill, their alert and self-protective measures, their search for organization and information, their evaluation of the work of the pollution contractors and Coast Guard, and their evaluation of the effects of the spill are analysed through narrative and simple statistical procedures. The report concludes that the area residents' planning for and response to a massive river pollution event needs improvement and that the Coast Guard's handling of public problems in a pollution event can also be improved. Recommendations are made which could be applicable to Coast Guard public relations and spill planning on the St. Lawrence River as well as other water bodies.		
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PREFACE

This report is the product of patient and dedicated fieldwork and data analysis by my research team of James Munafo, Glenn McRae, Peg Weeks, Daniel Fisher, Suzan Harper, Douglas Harper, Kathleen Lally, Gloria Myers, and most of all, Susan Omohundro, who has overseen every aspect of this research from the original proposal to the final report.

This project was prompted and constantly encouraged by Stephen Brown, the Sea Grant Advisory Service extension agent for the region. Assistance in the early months of fieldwork was given by Stephen Childs, Steven Marqusee, Cynthia Gillette, and Patrick Moran. Mary Bourret prepared the maps and Brenda Bergstrom gave assistance with the computer programs.

The residents of the St. Lawrence River Valley have given great support and placed great hopes in this report. We hope that our efforts here can in some small way repay them and realize those hopes.

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PART I

Introduction

This is a study of the problems which the inhabitants of the St. Lawrence River Valley encountered as a result of the NEPCO 140 oil spill and response operations from June, 1976, through October, 1976.

On June 23, 1976, at approximately 1:40 a.m., the tug "Eileen C," pushing New England Petroleum Company's Barge 140 through the six knot currents in the American Narrows area of the St. Lawrence River, grounded on shoals near Comfort Island, rupturing two of its tanks containing number 6 crude oil and beginning a discharge which ultimately surpassed 300,000 of its nearly 6 million gallon capacity. The captain notified the U. S. Coast Guard station at nearby Wellesley Island and proceeded to the nearest anchorage. The tug pushed the barge another ten miles upstream to the Mason's Point anchorage, grounding again and rupturing a third tank before coming to a stop at 3:30 a.m.

Thus began the largest and most expensive inland oil spill in U. S. history, one that taxed the abilities, resources, and energies of the Coast Guard, the cleanup workers, and the citizens. Over 60 Coast Guard personnel from the U. S. and Canada supervised three large pollution control general contractors plus the St. Lawrence Seaway Development Corporation in deploying over 30,000 feet of oil containment boom and 700 workers along 60 linear miles of shoreline to contain and remove the heavy oil. Nearly \$9 million was allotted from the Federal Revolving Fund to cover the expenses. Work removing the oil and repairing damages continued until the middle of October, 1976.

Recognizing the unprecedented level of human impact that the spill and response operations produced, the United States Coast Guard undertook the support of this social study to develop procedures and techniques to avoid or ameliorate problems encountered by the public during an oil spill pollution incident and the ensuing response operations. This study has performed the following five data collection tasks in order to identify the problem areas:

1. A survey by mail of 1,775 St. Lawrence riverfront property owners between Mason's Point, New York, and Massena, New York (see Map One), to determine the feelings of discontent, satisfaction, confusion and ignorance about the spill, and to assess what government behavior is most strongly associated with these responses.

2. A survey by mail of 2,012 customers of the Seaway area and of residents in the "fringe area," the villages and townships near but not on the river, to rate the impact of publicity and/or other information sources concerning the oil spill on their summer plans and activities in 1976 and 1977. Besides regular visitors to selected marinas and resorts, 10 percent samples of residents in the following towns were taken: Potsdam, Canton, Heuvelton, Madrid, Antwerp, Rensselaer Falls, Watertown, Gouverneur, Micholville, Hopkinton, Norfolk, and Hermon.

3. Intensive face-to-face interviews with approximately 110 individuals who live and/or work along the Seaway, either seasonally or yearround, and with individuals of local, state, and Federal government agencies associated with the Seaway or the spill response. Sixty-seven residents, 30 businessmen, and 15 local, state, and Federal officials were interviewed. Informants reported their history of association with the spill and response, their satisfactions and disappointments, identified citizens' problems, and suggested solutions.

4. Corroborative interviews with Coast Guard personnel and with individuals who were employed by commercial oil pollution contractors in order to cross-check the perceptions of people interviewed in the previous task. Twenty-one Coast Guardsmen and 22 individuals at all levels of the pollution control industry have been intensively interviewed about their history of involvement in the spill response and their perception of citizen problems.

5. Evidence from a variety of indirect documentary measures, not relying on citizen memory or opinion, for the alteration of individual and community behavior by the oil spill and cleanup efforts. Newspaper coverage, medical and psychological complaints, organization activity, and certain economic activities each provides some additional indication of social impact.

CHAPTER ONE

OIL POLLUTION EVENTS AND SOCIAL DISASTERS

Except for Harvey Molotch's study of the Santa Barbara oil spill,¹ no one has conducted a social impact study of an oil pollution event before. In this section we argue that the well-developed field of natural disaster research in sociology should be extended to include oil spills.

An oil spill poses much more than technological problems that scientific management principles can solve. An oil spill produces an emergency situation, a break in the routine, a sense of threat and confusion, a mobilization of people, both strange and familiar, a massive influx of money, and, in general, a novel and strained situation that must be responded to.

As we look back to the summer of 1976, the large oil spill on the St. Lawrence River had the character of a disaster. By this term we do not mean that it was identical to a natural disaster such as a flood or earthquake. There are critical differences. Some social scientists who study human behavior in natural disasters define disasters as Russell Dynes does:

An event, concentrated in time and space, in which a society, or a relatively self-sufficient subdivision of a society, undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfilment of all or some of the essential functions of the society is prevented. (*Italics mine.*)²

Such a definition requires that in a disaster the danger to life and property be enormous--enough to upset the entire society. Now, in the St. Lawrence River spill studied here the danger to human life was virtually nil. There was death, of course--to wildlife--but the extent of that death is not known or agreed upon. There was property damage but not of the magnitude possible in many natural disasters. If oil spills are to be seen in the light of natural disaster research, then we cannot rely primarily on their threat to life and property as their defining characteristics.

What determines if an oil spill is a disaster for our purposes are the responses of the government and the public--in effect, unusual responses by people. The Council on Environmental Quality, which wrote the National Oil and Hazardous Substances Pollution Contingency Plan

¹Harvey Molotch, "Oil in Santa Barbara and Power in America," in Serge Denisoff and Charles McCaghy, eds., Deviance, Conflict, and Criminality (New York: Random House, 1972).

²Russell Dynes, Organized Behavior in Disaster (Lexington, Mass.: D. C. Heath and Co., 1970), p. 50.

in 1975, defined a major inland spill as in excess of 10,000 gallons, "or of any quantity that substantially threatens public health or welfare or generates wide public interest." (Italics mine.)¹ The Council further defined a "major disaster" as "any catastrophe in any part of the U. S. which, in determination of the President, is or threatens to become of sufficient severity and magnitude to warrant disaster assistance by the Federal government." (Italics mine.)² Though the President never declared a condition of disaster in the St. Lawrence spill, Congress went to great and speedy efforts to appropriate an additional \$5 million to keep the Federal Revolving Fund solvent and help pay the bills of the St. Lawrence River cleanup. In several respects, therefore, the government's reaction to the event corresponds, in fact if not in name, to a disaster response.

An important characteristic of a disaster is the response of the public. Here are two definitions of disaster which do not depend on massive destruction of life and property:

We define disaster as a severe, relatively sudden, and frequently unexpected disruption of normal structural arrangements within a social system, or subsystem, resulting from a force, "natural" or "social," "internal" to a system or "external" to it, over which the system has no firm "control". (Italics mine.)³

Disaster is part of a larger category of collective stress situations, when many members fail to receive expected conditions of life from the system. (Italics mine.)⁴

There is every reason, we shall see, to consider a pollution event like the NEPCO spill a social disaster from the social scientist's viewpoint. How the public defines the spill will be treated later. To use the terms "emergency" or "collective stress situation" does not, in our opinion, weaken the case for studying an oil spill using disaster sociology.

The way people react and organizations work to respond to floods, storms, explosions, fires, and other natural disasters now constitutes an entire field of social studies--disaster sociology. One of the major goals of such studies is to improve disaster response, both by the victims and by those who help them. However, to this day there is an enormous void of information on social behavior in oil spill events, information which is absolutely essential for realistic contingency planning, training, administering, and assistance to victims.

¹Council on Environmental Quality, National Oil and Hazardous Substances Pollution Contingency Plan, Federal Register, Vol. 40, no. 28, 10 Feb., 1975, p. 3.

²Ibid., p. 4.

³Gideon Sjoberg, "Disasters and Social Change," in George Baker and Dwight Chapman, eds., Man and Society in Disaster (New York: Basic Books, 1962), p. 357.

⁴Allen Barton, Communities in Disaster (Garden City: Doubleday, 1969), p. 38.

If there continue to be thousands of oil spills a year, it is imperative that everyone involved know as much as possible about what usually happens socially, what can happen, and what they should do. Only in this way can cleanup proceed most efficiently, frustrations and confusion be minimized, and communities return to normalcy with a new level of preparedness.

CHAPTER TWO

STUDYING THE SOCIAL IMPACT OF AN OIL SPILL

Fieldwork without financial support was begun by the project director and three assistants in September, 1976, in the final stages of the cleanup operations. U. S. Coast Guard support began August, 1977, when a team of four interviewers and four assistants was assembled to complete the intensive interviews and to begin the questionnaire surveys. Fieldwork terminated in March, 1978.

The theoretical and empirical literature on the social impact of natural disasters has provided the main conceptual framework for organizing and interpreting the problems that followed the NEPCO 140 incident. The problems incurred in an oil pollution incident in inland waters that strikes both natural and inhabited areas will be compared to those problems arising in natural disasters, which--we have and will continue to suggest--massive oil spills resemble in some important ways.

Some problems will emerge from our analysis of the local community's "disaster culture," a set of values, knowledge, anticipations, and plans that shape its action at the onset of an environmental threat. It is important therefore to devote some space to describing the social conditions in the spill area before the spill occurred to understand how developed was the public's disaster culture. These pre-spill conditions are examined in the next chapter.

Other areas of problems for the public will emerge from our analysis of the local communities' "emergency social system," or "therapeutic community response," similar terms describing the psychological and social structural responses to the environmental threat and the new social conditions imposed by the Government's response to that threat. The role of various agents of local, state, and Federal government in assisting these local community responses will also be specified.

The types of cultural or social problems typically encountered in natural disasters that apply to oil pollution incidents in inhabited areas are numerous. They include conflicts of values within the community, inadequate or inaccurate communication and associated decline of morale, the search for new leadership and emergent groups, coordinating and decision-making, personal distress at the destruction of property and lives, and mobilization of personnel and existing social groups. Also important are the perception of and relationship to the disaster response agencies (the U. S. Coast Guard, the environmental agencies, and the pollution contractors), the financial and political problems of restoration, and the inadequacy of preparation and warning systems.

We shall attempt to document the presence and extent of such problem areas in the main body of this report.

About the Data

Before we introduce the results of the surveys and interviews, a brief picture of the people who returned questionnaires or were interviewed may help to put the results in context.

Six hundred and five riparian property owners returned the four-page questionnaire, a 34% return rate which is very high for mailed surveys and suggests a strong interest persists among the residents about oil spills. A breakdown of the categories of people who filled out the questionnaire is as follows:

- 89% were household heads
- 74% were men
- 73% were 51 years old or older
- 50% had white collar occupations (administrative, commercial, professional and salaried positions)
- 16% were yearround riparian residents, 60% were summer residents with landside property, 6% were islanders, and 1% were riparian businessmen

The sample universe was compiled from tax rolls by the St. Lawrence-Eastern Ontario Commission and graciously lent to us.

Five hundred and one regular visitors and fringe area residents returned their two-page questionnaire, a 25% return rate which is also unusually high for such a survey. A breakdown of the categories of people who filled out this questionnaire is as follows:

- 88% were household heads
- 78% were men
- 50% were 51 years old or older
- 50% had white collar occupations
- 40% own or rent a camp on the river
- 48% were regular visitors to the river who owned no property there

The sample universe included customers of marina and resort operators, plus 10% of the names in the telephone directories of 12 towns and villages in St. Lawrence and Jefferson Counties which were near but not on the river.

Ninety-seven individuals with property or businesses on the river were personally interviewed for from one to four hours using an open-ended interview schedule of about 20 topics. A breakdown of the categories of people we interviewed is as follows:

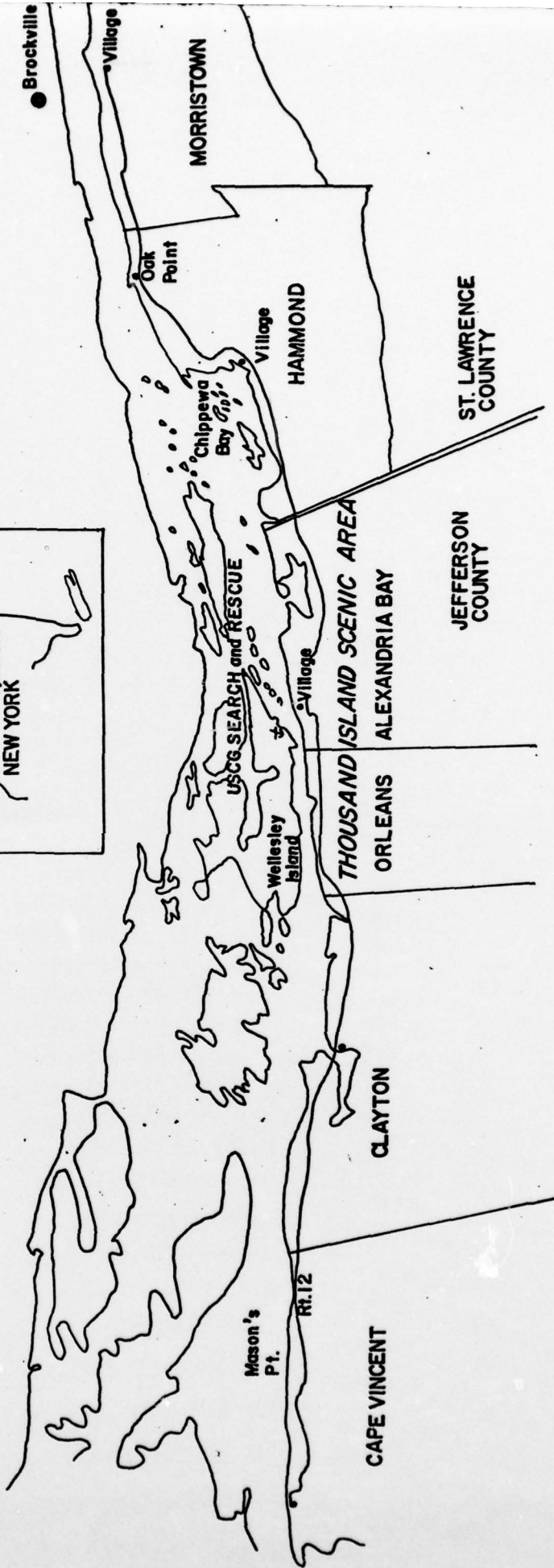
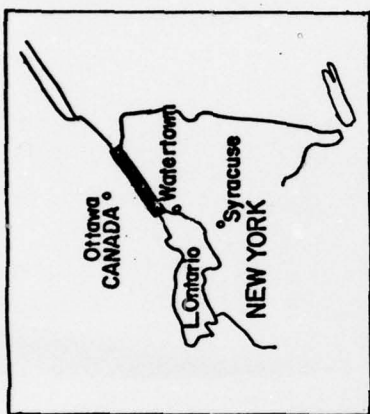
- 58% were household heads
- 55% were men
- 57% were 51 years old or older
- 62% were white collar; the remainder were blue collar, housewives, or retired
- 32% were summer residents with landside property, 14% were islanders, 19% were yearround riparian residents, 12% operated summer businesses, and 23% were yearround businessmen
- 74% had been on the river for ten years or more

The sample universe was stratified by section of the spill area, yearround or summer residence, business or private property ownership, and landside or island property ownership. Interview appointments were

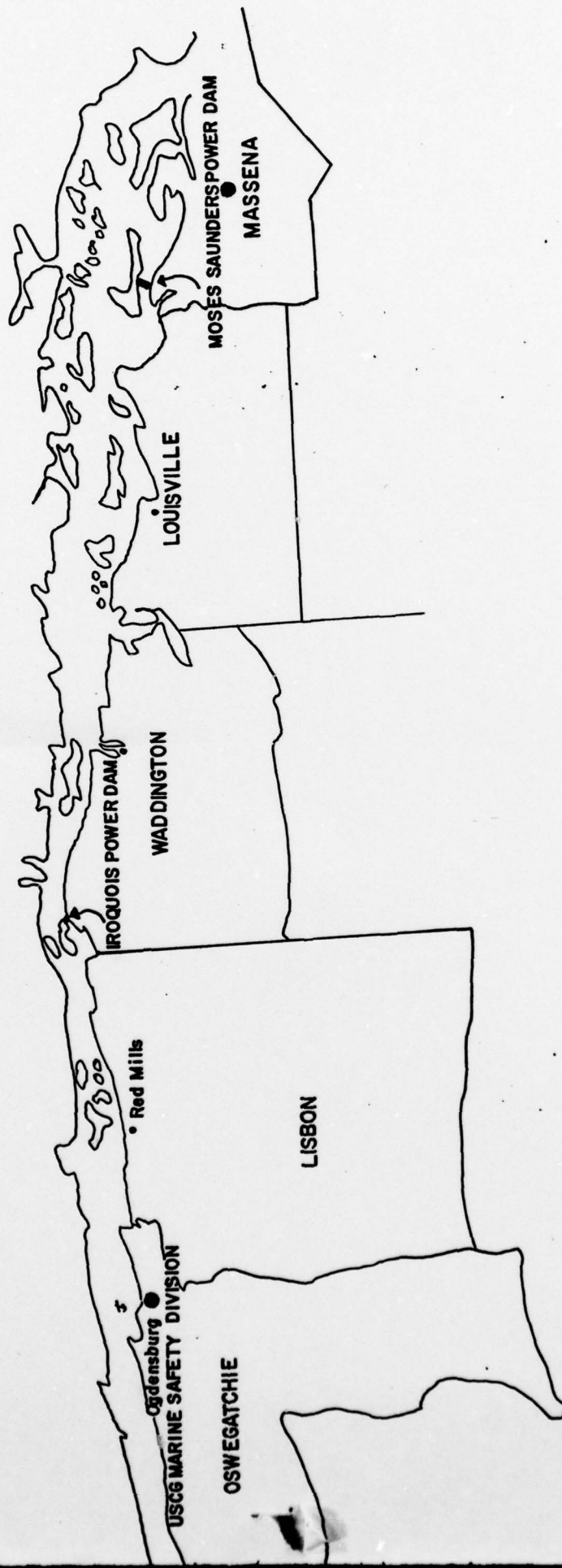
made from an availability sample within those strata.

Copies of the questionnaires and interview schedules are reproduced in Appendix A.

NEPCO OIL SPILL IMPACT



AREA OF ST. LAWRENCE RIVER



CHAPTER THREE

BEFORE THE SPILL

To fully understand the social response to the NEPCO spill, and to anticipate with any accuracy the response to an oil spill of any community, one must begin with an understanding of the social structure, the pattern of life, and the attitudes toward the river and the government of those living in the spill impact area.

Our interviews were conducted after the spill had sharpened and polarized certain opinions and after some organizational change had occurred, so the precise level of opinions, knowledge, and organizational functioning in non-emergency times is uncertain. But according to the informants themselves, opinions and social actions were not changed by the spill emergency, only sharpened. This position is supported by the disaster researchers^{1,2,3} who report that the stricken communities in emergencies and disasters will act and think in patterns derived directly from their normal daily lives. The outlines of their "disaster culture," the blueprint which shapes their response to an emergency, in other words, is visible before the emergency and gives many clues to the social response.

It is possible, therefore, to reconstruct after the fact at least a qualitative picture of the important community variables which affected the public response to the NEPCO oil spill. In this section we shall examine the geographical, political, and social divisions of the community; the economic base and seasonal rhythm of life of the area; residents' relationship to the river and perception of its problems; and the position of government agencies--especially the Coast Guard--in non-emergency times.

We shall refer to the United States side of the river from Mason's Point, New York, to Massena, New York, as the "spill area" (see Map One). This area comprises two counties--Jefferson County upriver and St. Lawrence County downriver--and eight townships--one in Jefferson and seven in St. Lawrence. The accident occurred in the waters adjacent to the village of Alexandria Bay, in Jefferson County, an area called "the Thousand Islands area" of the river, dotted with innumerable tree-covered islands with bare, pre-Cambrian rock shorelines. As the oil moved downriver into St. Lawrence County and the township of Hammond, it encountered a different ecological zone, one also strewn with rocky

¹Jon W. Anderson, "Cultural Adaptation to Threatened Disaster," *Human Organization*, Vol. 27, no. 4, Winter, 1968, p. 300.

²Harry E. Moore, Frederick Bates, Marvin Layman, and Vernon Parenton, *Before the Wind*, Publication 1095, Disaster Study #19, National Academy of Science--National Research Council (Washington, D.C.: Government Printing Office, 1963), p. 130.

³Russell Dynes, *Organized Behavior in Disaster*, pp. 79-80.

islands but also with more marshy shorelines. The ladle-shaped Chippewa Bay acted as a natural collecting place for the oil that was whisked by the fast currents past the rocky shores of the Thousand Islands area. Continuing downriver, the oil entered into the straight, relatively unobstructed shipping channel past the village of Morristown and the city of Ogdensburg to threaten the hydroelectric dams, islands, and marshes of the Waddington and Massena area. At virtually every point in its movement the oil was deposited in some amount on the U. S. shore, and the commercial pollution contractors were at various times in 1976 working from Mason's Point, where the tug had come to anchor, to Massena. Due to variable winds and coastline configurations, the oil was deposited very unevenly in the spill area, with some islands, bays, and docks or river structures bypassed while others were completely contaminated.

To summarize the ecological variations in the spill area, the Alexandria Bay area had a large amount of island and shoreline vulnerable to the spill but faster, straighter currents and a higher proportion of steep rocky shores than the Chippewa Bay area; hence, the oil flushed somewhat better from the Alexandria Bay region. Chippewa Bay area also has many islands but the pattern of currents and the marshy shoreline tended to collect more oil. Except for hitting prominences like Oak Point or being pushed to the shore by winds, the oil continuing further downriver had less impact on the land until the Waddington and Massena areas. We strongly suspect that the response of the public will vary by the amount of oil they received and its perceived threat to their local river conditions. The amount of oil and its immediate danger depends in part on local ecological conditions, so we can expect the Alexandria Bay area, the Chippewa Bay area, the Morristown-Ogdensburg area, and the Waddington-Massena area to respond to the oil spill in different ways.

There are several important distinctions among the residents of the spill area, distinctions based upon the character of one's relationship to the river. These distinctions played a large role in the variety of the public's response to the NEPCO incident. One important distinction is between the yearround residents and the "summer people", those who own land along the river but come mainly in the summer months and primarily for recreation. Another important social division which coincides with the Jefferson and St. Lawrence County line, and will have political ramifications, is that between the Alexandria Bay area and the Chippewa Bay area. The Alexandria Bay area specializes in catering to transient summer tourists as well as islanders and other summer people and so operates different types of businesses than those in the Chippewa Bay area, which relies on a regular summer trade of cabin and boat rentals.

The counties also differ in their governmental structure. Many river people sense an invisible boundary along Route 12 which separates the coastal concerns from the inland rural area specializing in dairying. Actually, a large number of individuals in contiguous townships to those on the rivershore have property or interests on the river. But it is true to say that neighboring townships and the farming portions of the rivershore townships do not involve themselves collectively in river concerns.

There are other social divisions among river people that interfere with a sense of common purpose and values in times of emergencies. The islanders, who tend to be the most leisured, literate, and wealthy of the spill area residents, are disappointed at the growth of mobile home parks along the river for vacationers of modest means. They suspect that the sewage systems in these high density areas are damaging the river and they claim that the parks distract from the natural setting. Working residents decry the large number of welfare and unemployment insurance recipients among them, though they disagree on their numbers and on whether the unemployment is due to laziness or lack of available work.

In general, residents in this unusual natural area have many suspicions that other residents are exploiting the area and will in the process ruin it. In normal times there is an uneasy alliance to share the river. When emergency strikes, things fly apart.

Two examples of distinct community organization follow to illustrate the organizational cleavages that the river residents normally operate within. The examples are drawn from the upriver portion of the spill area where the oil impact was greatest. In the downriver portion below Ogdensburg, most river residents are yearround citizens of the surrounding towns and villages and social cleavages are not pronounced.

In the Alexandria Bay area the summer people occupy islands and clusters of geographically distinct shoreline areas outside of the tourist-oriented commercial district of Alexandria Bay Village. A number of the island groups or shoreline communities have proud histories of over a hundred years and ties to the property three and four generations deep. Residents are organized into loose neighborhood associations that are partly social and partly task-oriented, maintaining dirt access roads or a community dock, for example. Their connection to the village is purely commercial by choice though some of the islands are within the village line and pay village taxes. "People here [in the summer communities] are independent; they don't want contact with others. They come to the river to get away from that," said one summer resident, which characterizes the lack of interest in developing more than the minimal connections with the yearround community of the village.

In the Chippewa Bay area, an indicator of the difference between the islanders and shoreline residents is the Chippewa Yacht Club and dock, separate private facilities with their own parking lot immediately adjacent to the township's dock in the village of Chippewa Bay. The Yacht Club has a small clubhouse and its own cooperative store at the dock. The main connections between the club members and the yearround community are the marinas, which in the summer operate throughout the Thousand Islands region as the most important contact point and funnel of information between the summer and yearround residents.

The social response to an oil spill will depend not only on how much oil a person received and the type of ecological zone he inhabits, but also on which social group he is in, whom he shares his oil problem with, and the degree to which he shares values and perceptions of the river, of river residents, and of the spill.

Awareness of these social distinctions does not mean that relations between people along the Seaway is hostile or suspicious in the normal course of events. Most people we interviewed acknowledged that there

was a great deal of interdependence between native river people, for example, and summer people, and that relations were polite. And active cooperation does exist in a few places. The Thousand Islands Commission is a bi-national organization including both yearround residents and summer people on its citizens' advisory committee. It conducts studies of such issues as pollution, navigation, and zoning in the tourist region around Alexandria Bay. The St. Lawrence-Eastern Ontario Commission, also with a citizens' advisory committee of broad representation, concerns itself with similar issues but over the entire St. Lawrence River. Summer people and yearround residents also share membership on the Advisory Council of SeaGrant, a federally funded project investigating development of recreation and tourism along the river. Also, in response to the Parcs Canada effort to declare the Canadian side of the St. Lawrence River near Alexandria Bay a national wilderness area to possess the lands held by the summer people and other private owners, both summer people and Canadian local people have joined interests in an informal bi-national lobbying effort called Thousand Island Area Residents' Association, or TIARA, to oppose forced sale of coastal land.

An important characteristic of the spill area from Alexandria Bay to Ogdensburg, and to a lesser extent, downriver to Massena, is the pronounced seasonal rhythm of a three month tourist season followed by the slack winter months. The dominant economic basis for the oil spill impact area is tourism, beginning about Memorial Day and sharply curtailed after Labor Day. Speaking of Alexandria Bay Village, a businessman said, "Most businesses close for the winter. Many people have nothing to do in the winter but collect unemployment. The village depends absolutely on the summer tourist season." Alexandria Bay's lively James Street, with its taverns, restaurants, and shops, is desolate by November. Chippewa Bay, a beehive of activity in July, dwindles to thirty families in the winter. Informants stated that those area residents who do not work for the government, schools, the local hospital, or commute to Watertown or Clayton, usually collect unemployment insurance. The summer season runs long enough to qualify wage earners for unemployment payments, and long enough for family-run businesses to make a yearly living if the season is good. Informants claimed that businesses in the region must be family-run; commercial chains cannot afford to open in this tourist area because few businesses can afford to hire managerial help. In fact, only two or three businesses from Alexandria Bay to Ogdensburg are not family owned and operated. When the season is over, the family closes down the business and does one of three things: keep themselves busy with paperwork, diversify into sidelines like snowplowing, or leave town for their original homes in Syracuse, Watertown, or Rochester, for example, or for vacations in Florida. A very few establishments stay open to cater to winter sportsmen, but most cannot afford the heat bills. No winter sports attractions have yet been developed to support more than one yearround restaurant in Alexandria Bay.

By November, the islanders and riparian cottage owners have closed their summer places and returned to their homes all over Canada and the United States. A month or so later the river begins to freeze over and becomes nearly deserted.

When the summer season comes, the region from Alexandria Bay to Ogdensburg is constantly in high gear. The tourist businesses demand sixteen hour days, seven days a week at this time of year. The social

life of the area is created by the tourists and summer people; the residents say they are too busy working to see one another.

Therefore, because of the pronounced seasonal cycle and the tenuous economic base of the communities related to that cycle, the timing of the onset of oil spill events is also of crucial importance in anticipating public response. The onset of the NEPCO spill events at the beginning of the summer season occurred under these distinctly seasonal conditions: first, the critical summer business was about to begin, and second, most business establishments along the river would have little leisure to deal with a complicated organizational problem. Also, the return of summer residents had begun and the riparian region was fast approaching its maximal population density. Like the businessmen, summer people were threatened with the loss of their entire summer; unlike the businessmen, summer people had the leisure to organize and react.

River communities in the oil spill area share another feature: the St. Lawrence River on which they depend for their recreation or livelihood is also a part of the Great Lakes-St. Lawrence Seaway system, an internationally regulated waterway used annually by thousands of ships carrying a wide variety of cargo. The cataract-filled river was developed into a major shipping route in the 1950's, so many residents and summer people have memories of the river before development. Overall, the people who live along the St. Lawrence, whether summer or yearround residents, share a fierce sense of proprietary interest in it, a high dependence upon it, a number of anxieties about the changes it is undergoing, and a sense of political weakness to affect the fate of the river, and thus, of themselves. These relationships of people, nature, and government are brought into sharp relief during an oil spill emergency.

The attachment to the river of most people we interviewed was a voluntary condition and accompanied by powerful emotions. They came to live and work or vacation along the river because of its natural beauty and the character of rural life along it. They saw the river as "their" river. Its existence as an international Seaway is entirely secondary and in uneasy coexistence with their perceptions of it. "There is a superhighway going through one of the most beautiful areas in the world here," said one informant. Most people we interviewed after the spill were upset by the paradox that the Seaway traffic was omnipresent--now as an even greater danger, they concluded--but that they were not in a position to regulate it or to profit from it, only to be injured by it. No one proposed closing the Seaway, even in anger, for the important economic function it serves was appreciated--but only in the abstract. Their own benefits from the river are simply more real to residents.

Summer residents and "river rats" (a sometimes affectionate, sometimes nasty epithet for yearround residents with river jobs) both pride themselves on their intimate knowledge of the river, its wildlife, currents, dangers, and power. They know that living safely and fully on the river requires years of accumulated skills. Surprisingly, to our mind, very few people had a decent grasp of the river as a Seaway--its regulations, mode of operation, volume of traffic and type of cargo, and the methods of navigating by lake steamers and ocean-going vessels. They do not recognize, or perhaps they do not accept, that legally, the smooth operation of the Seaway has precedence over the rights of riparian property

owners. They are not aware that over the last twenty years fewer vessels with fewer types of cargo are plying the Seaway. They are not aware that oil transport has and will continue to decrease as other methods of moving oil such as pipelines come into operation. They did not know, and generally, did not care before the NEPCO spill, what other hazardous materials were carried on the river. This sharp contrast between knowledge of the river and ignorance of the Seaway produced several problems for the public during the NEPCO spill: a resentment of nonlocal people who did not know the river as well as they but had come to manage the spill response, a sense of injustice that commercial interests had apparently received priority because of government bias and not because of law, outrage at perceived carelessness in the Seaway's operation, and a large demand for detailed information about the Seaway to reduce their ignorance and give precision to their response. These problems will be examined in later sections.

The threat of pollution from oil and other hazardous substances caused by passing vessels was known before the NEPCO spill. For example, the Maple Branch sank off shore from Clayton, just upriver of the NEPCO spill area, in 1959, spilling 50,000 gallons of oil. The Singapore Trader ran aground in the Alexandria Bay area in 1971: spill precautions were taken but no spill occurred. In the spring of 1974 the Imperial Sarnia went aground off the coast of Oak Point, downriver from Chippewa Bay, spilling 150,000 gallons along the shore of that region. In the fall of the same year, the Jodrey sank in the Alexandria Bay Narrows and spilled light diesel fuel throughout the village area. Ship groundings occur annually and information about them spreads quickly among riparian residents. Most of these events are quickly put out of mind: they didn't spill much contaminant, they occurred at a time of year when few people were residing on the river, they contaminated an unoccupied area, and other reasons. The exception to this generalization is the Sarnia spill in 1974, which is one key to understanding the strength of reaction in the NEPCO incident.

The Sarnia spill was a major one, over 150,000 gallons, and contaminated an area occupied by literate, leisured, ecologically conscious summer residents who pressed for thorough cleanup and restitution. The spill occurred in the year that Americans suffered under the Arab oil embargo and public image of international oil corporations was low. The Sarnia, operated by Exxon Corporation, became a target of general anger and concern for the natural environment. Exxon took full responsibility for the cleanup and reparations, closely monitoring both the cleanup operation and resident reactions and spending a good deal to insure a satisfactory conclusion to the accident. Though cleanup techniques were more primitive than those of the NEPCO response, a number of factors combined to give satisfaction: the terrain of the spill area was relatively easy to clean; the spiller accepted full responsibility; a smaller victim population was affected; no commercial areas were threatened with loss of business; the spill occurred before the full summer season; and the publicity surrounding the events was not great. When the NEPCO incident occurred, therefore, the public's fresh memory of the Sarnia spill exacerbated the outrage but their expectations for response were extremely high. Twenty-four people in 135 interviews brought up the topic of the Sarnia events

and the majority criticized the NEPCO events in comparison. "The difference between the Sarnia and the NEPCO spills is they cleaned up the Sarnia one," said a man who worked on both.

Most of the residents of the spill area were aware, therefore, that spills had and would occur. In some areas, there was even previous experience with major spills. Almost without exception, however, experience with spills had not contributed to preparation for future spills. The primary effect of experience with spills was an increase in the expectation that "Now they'll be careful," with the consequent greater outrage at the next spill--the NEPCO incident.

Threats to the river by the shipping of oil are only one aspect of a larger scheme of interrelated dangers that river area residents identify. Response to an oil pollution incident is intensified when the public is already conscious of and upset by a larger trend in changing river conditions. Some river residents are organized in opposition to plans by the Power Authority of the State of New York to use river resources for proposed atomic power plants. A number of residents are worried that the creation of an extended navigation season, which would add several months of shipping by cutting channels after the ice forms, would increase the chance of accidents and oil spills without providing any advantages to river residents. High water conditions, producing damage to waterfronts and docks, afflicted the area for several years prior to the NEPCO incident; some people feel these water levels are primarily politically decided and technologically manageable. Residents suspect mobile home parks, islanders, and even the City of Ogdensburg of dumping untreated sewage into the river. Goose Bay inhabitants are in legal battles with Kring Point State Park over the latter's alleged pollution of the Bay with effluents from their public buildings. And surely the most widespread irritant among river residents is the presence in the water of deadly trace chemicals: PCB's, mercury, and Mirex. "I'll tell you what really worries me," many respondents mentioned when discussing the NEPCO events, "this Mirex thing." A long-lasting insecticide taken up in sport fish in the area, Mirex is an accidental effluent from industrial plants further west in the Seaway system. The Dept. of Environmental Conservation had placed restrictions on fish catches, reducing the pleasure of sport fishermen and threatening the livelihood of the tourist businesses of the spill area. Taken together, whether real or not, these perceived threats constitute the background against which the NEPCO incident was viewed.

The position in the river communities of Federal and state government, upon whom fell the burden of spill response in 1976, affected the public's reaction to the spill and the cleanup efforts. The first characteristic of government is the attention it devotes to the river. As an international boundary and a major avenue of cargo, the river is highly regulated by both state and Federal agencies. The main agencies on the U. S. side are the St. Lawrence Seaway Development Corporation, responsible for maintaining the Seaway and directing traffic; the U. S. Army Corps of Engineers, who built the Seaway and remain responsible for its physical characteristics; the Environmental Protection Agency, U. S. Fish and Wildlife, and the State Department of Environmental Conservation, all functioning to monitor and preserve the river's health; and a number of international commissions such as the St. Lawrence-Eastern Ontario Commission and the Thousand Islands Bridge Authority which provide a means of communication with Canada for a variety of river valley concerns.

Last, and to be treated more fully below, the U. S. Coast Guard maintains a Search and Rescue Station on Wellesley Island and a Marine Safety Detachment in Ogdensburg.

The complex--and to all parties, frequently confusing--intertwining of local, state, Federal, and international responsibilities produces what Nash *et al.*¹ describe for the Santa Barbara oil spill as "marble cake" federalism, a situation where an agency's responsibilities are sometimes area-wide and advisory; sometimes local, specific, and regulatory; involving it sometimes less, sometimes more than local or international agencies and duplicating the functions, though not the policies, of other agencies. Governmental concern for the St. Lawrence River has greatly increased since the construction of the Seaway and the increase in bi-national concern with water quality control.

The public is of two minds about this high level of government concern with "their" river. On the one hand, they appreciate the conservation efforts. A resident of about 40 reported:

You used to be able to drink the water straight from the river when I was young. Then eventually it got so bad you could hardly swim in it. In the past four years or so, it has improved somewhat and the fishing is better. The improvement is mostly due to . . . tightening of the laws.

On the other hand, there is resentment against regulatory agencies for alleged interference in local matters. "I hate . . . the Department of Environmental Conservation: they have no common sense; they are discourteous," one otherwise reserved local official claimed. "I've had terrible experiences with the Army Corps of Engineers," said another resident. The commissions came under fire from a local official: "They have a rather high-handed attitude toward the people in their area, and pose just another obstacle to economic development because they all have licensing powers." This resentment is expressed most strongly by persons with commercial interests and local officials interested in development; summer residents tend to be supportive of environmental regulations or to be unaware of much government involvement in the river. They express their discontent most often against the Seaway itself, which operates a shipping route past their islands and cottages.

Residents and summer people both expressed in interviews a sense of political impotence of the river area to care for its own affairs. The omnipresence of many governmental levels, cited for failures to make important actions in some cases, for excessive actions in others, is one perceived cause of this political impotence. Another is the isolation and relatively sparse population of the region, which make it attractive for tourism on the one hand, but effectively rule out political clout on the other hand. "Too few powerful people were affected by the spill,"

¹A. E. Keir Nash, Dean E. Mann, and Phil G. Olsen, Oil Pollution and the Public Interest: A Study of the Santa Barbara Oil Spill (Berkeley: Institute of Governmental Studies, 1972), p. 49.

one man put it. In the opinion of another man active politically in the St. Lawrence County response to the NEPCO incident, "Compared to Santa Barbara [spill of 1969], we got far less publicity. There are no big newspapers in our area to pick up the story. This is a forgotten area because of our location and we have so few people." A number of people we interviewed repeated personal conversations they had with their Congressman who, when hard pressed by his constituency to propose constraints on shipping in the Seaway, replied that he was only one of 150 Congressional Representatives whose districts bordered on the Seaway system, and that restrictive legislation would never pass in the face of opposition from industrial and commercial sectors.

The status and role of the U. S. Coast Guard on the St. Lawrence River in normal times is an important determinant of their reception by and coordination with the public. As specified by the Great Lakes-St. Lawrence Seaway Contingency Plan, which defines the organizational response of the government to pollution hazards, the U. S. Coast Guard assumed responsibility for the NEPCO events as chairman of the Joint Response Team, as on-scene commander, and as monitors of the pollution contractors who cleaned the spill.

For many people, we surmise from our interviews after the NEPCO incident, the conclusion that the Coast Guard did well or poorly depended a good deal upon how the Coast Guard was rated in the performance of their normal duties.

Complaints about the Coast Guard are strongest among those most active in boating, such as marina operators, longtime residents intimate with river conditions, fishermen, and islanders. A majority of residents have no opinion or only a vague sense of the same problems mentioned by the boaters. Our impression is that those who are in most frequent contact with the Coast Guard have a precise set of complaints which in the aggravations of the NEPCO incident and increased communication among the residents, spread widely throughout the community to color the interpretation of events.

Overall, the important points in the image of the Coast Guard that affect its reception as coordinator of a spill response are these:

1. The Coast Guard suffers from inadequate publicity. Their actual functions on the river, at Wellesley Island and Ogdensburg, are misunderstood. Many people thought--and still think--that the Coast Guard controls the traffic on the Seaway as it controls their pleasure boating. Many people thought that the Wellesley Island station was responsible for protecting the community from oil spills, when their mandated responsibilities are in search and rescue and other areas. Many people complained that the Coast Guard was ordinarily too little in evidence on the river. They are the "policemen of the river," yet are far less visible than landbased law officers. Coast Guardsmen we spoke to acknowledged that publicity was inadequate, cited difficulties they faced in acquiring publicity--some of which are identified below--and expressed an eagerness to increase publicity. An accurate public understanding of what the local Coast Guard is responsible for and what it has accomplished for the area residents will improve the public response to the Coast Guard's leadership of a pollution response.

2. Sympathetic and critical river residents alike assess the local

Coast Guard stations as undermanned, underequipped, and undertrained to meet the wide variety of dangers on the river. One man likened the local stations to "Fort Apache," the most distant frontier stations with the least attention from headquarters. Both stations were undermanned in Fall 1977; the Guardsmen recognize a recruiting and turnover problem in the uniformed services in general to which they are particularly vulnerable. Both stations have few service craft, either boats or trucks, by which they could be visible to the public. Certain emergencies such as the NEPCO events call for the cooperation of the Canadian Coast Guard in Prescott, who operate fireboats and other large craft. Finally, terms of duty often run as little as a year or eighteen months, contributing to the single most common criticism of the Coast Guard by residents we interviewed: "They don't know the river." Outside of the Seaway channel--which is the primary responsibility of the Coast Guard--the complicated, dangerous St. Lawrence River with its many islands, coves, and points is known only to the longtime residents. The Coast Guard's ability to respond to emergencies outside the channel as well as win the acceptance of proud local citizens depends upon serious efforts to learn the river, as distinguished from the channel, from the resident's viewpoint.

To summarize this section on the St. Lawrence River residents' "disaster culture," or the features of their lives that shaped their response to an emergency, we can highlight the important community characteristics of the spill area. Knowledge of these characteristics, or immediate access to such knowledge, will provide the government with clues to how they might best accommodate the citizens in a pollution event.

The important community characteristics are these:

- **the economic base of the river community and the seasonal rhythm of life and occupation
- **the social and cultural distinctions among the river residents which influence their shared values and ability to communicate
- **the residents' use of, knowledge of, and attachment to the river
- **the residents' sense of river problems, their awareness of what is happening and what might happen to the river
- **government involvement with the river in non-emergency times and the citizens' relationship to that government

Building from this foundation of pre-spill conditions, the next section will examine the actual response of the public to the NEPCO events which began June 23, 1976.

PART II

Introduction

In the chapters that follow we shall examine how the riparian property owners, commercial establishments, and St. Lawrence River Valley residents responded to the impact of oil and to the Government's efforts to clean it up. After reviewing the concept of "disaster culture" which shapes our analysis of these events, we shall examine the warning system and the citizens' immediate response, their reactions to the Coast Guard efforts, their reaction to the commercial pollution company efforts, their comparison of the NEPCO events with other spills and river dangers, and, finally, we shall evaluate their perception of the long and short term effects on themselves, others, the river, and the new state of their disaster culture.

As we define it, a disaster culture is a set of values and plans shared by residents of an area subject to chronic threats from natural hazards or manmade accidents. The disaster culture of residents on the river contains these elements:

1. A perception of the potential dangers of the river and the traffic on it and an assessment of risk.
2. A perception of how to prepare oneself for emergencies produced by those dangers.
3. A perception of how others, especially responsible agencies such as the Joint Response Team and the St. Lawrence Seaway Development Corporation but also one's fellow citizens and government officials, can be expected to react to said emergency.
4. A perception of what the individual should do to respond to an alert, to damage, and to restorative efforts, such as the handling of pets and boats, self-protective measures, giving information or seeking it, joining an emergency consensus, and joining in cooperative action.

Students of disaster behavior are of the opinion that, within limits, disaster response can be improved, but the changes required must be basic and widespread. In Before the Wind, H. E. Moore, et al., write:

The fundamental function of culture is to provide the individual with a set of values that define his life experiences. When values are applicable to disaster situations, they are implemented in an interpretation of them; but inappropriate action often results, since the disaster is outside of the cultural definition. When, however, disaster is incorporated into the culture--when a 'disaster culture' is developed--definitions of the situation obtain and are applied. The effect of these definitions is a substantial reduction of the impact of the disaster both emotionally and physically, and in terms of the value of property

destroyed. (*Italics mine.*)¹

Disaster is incorporated into the culture not only by experiencing it but by training and planning in non-emergency times. The level of the entire community disaster culture must be raised. Jon Anderson writes:

The delineation of chronic threats . . . presupposes that some threatening situations are systematically known before they are experienced by an individual. When the threat materializes, previously devised and transmitted assimilative schemata provide the cultural tools for recognizing and coping with the situation as something known. It is this provision of an appropriate and clear reference input to which the situation can readily be assimilated, a disaster culture, that reduces the heterogeneity of response. (*Italics mine.*)²

We shall now examine the community's response to the NEPCO events in light of the above framework.

¹Moore, et al., *Before the Wind*, p. 130.

²Anderson, "Cultural Adaptation to Threatened Disaster," p. 300.

CHAPTER FOUR

ALERT AND IMPACT

As early as 2:30 a.m. on Wednesday, June 23--about an hour after the barge first ran aground--residents along the river became aware that something was clearly wrong. Many people awoke to the strong smell of crude oil, fearing that their furnaces were leaking or that there was an oil fire nearby. At 3:30 a.m. a resident near the water in the village of Alexandria Bay turned in a fire alarm, fearing an oil fire at a boat dock. The alarm, the smell, and the sound of the fire trucks woke still more residents, some of whom, in bathrobes, left their houses for the street and shoreline to learn what happened. In the dark and the fog, few were sure what had actually happened. Most people reported that they returned to bed for four or five hours.

Except for the Alexandria Bay Village fire chief, who was notified about 2:30 a.m., and the commercial tour boat lines, who were notified about 5:00 a.m., few individuals along the river were officially notified or delivered instructions about the oil spill. There was no mechanism for giving alarm nor set of instructions to give. Those notified earliest agreed that there was "no sense in alarming the citizens." To an extent this position was justified because few people knew what to expect of an oil spill, or how to protect themselves. There was no precedent.

Other than the residents in the village of Alexandria Bay, most river residents came to knowledge of the spill only through the morning radio or by phone calls from those who had heard the radio. Some residents heard portions of messages about an oil spill on their marine band radios during the early morning hours, but others would wait for the 7:00 a.m. news before fully understanding what the strong smell on the river foretold. Ironically, a number of residents first learned of the spill when they were called by friends and relatives from New York City, Rochester, and other distant areas. A marina operator on the river, for example, was warned about the spill by a friend in Morristown, further downriver, who happened to hear a radio broadcast first. To a large extent, the alarm passed by the grapevine in a hit or miss fashion, such that some residents downriver from Alexandria Bay were surprised by the oil quite late in the morning.

Our personal interviews with 97 residents and businesses along the river reveal that 34 people were first alerted to the spill by smelling or seeing it; 5 were alerted by calls from the Coast Guard station at Wellesley Island, and another 10 were alerted by neighbors and phone calls. Thirty-one people first heard of the spill from radio or television, whether or not they were resident along the river at the time of the spill. Seventy-six percent of those who were first alerted to the spill by smelling or seeing it were in the Alexandria Bay area, where the spill began. Seventy-seven percent of those who first learned

of the spill through radio or TV were in downriver areas. Unfortunately, 23% of those who first discovered the spill by smelling or seeing it were downriver of the Alexandria Bay area, indicating that they didn't know of the accident which had occurred many hours before until the oil was nearly upon them.

Fifty percent of those we interviewed had been alerted to the spill by 8:00 a.m. June 23, six and one-half hours after the first grounding. Seventy-four percent of these people were in the Alexandria Bay area; the alert proceeded downriver in time as the oil did. That is, residents downriver tended to hear about the spill later in the day. Thus the lead time for downriver residents to prepare for the oil was not always greater than for those in the area of immediate impact. The data for these generalizations are given in Tables 1 and 2, both of which are statistically significant.

TABLE 1: Method of Alert to NEPCO Oil Spill for 97 Riparian Residents, by Location of Residence.

Method of Alert	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Smelled it; saw it	26 62%	4 14%	4 15%	34 35%
Phone or personal contacts	6 14%	5 17%	4 15%	15 16%
Radio, TV, newspaper	10 24%	20 69%	18 69%	48 49%
Total	42 100%	29 100%	26 100%	97 100%

Chi square significance = $p < .001$
Contingency coefficient = .45

A thorough alarm system is necessary so that self-protective measures, coupled with a knowledge of what is likely to happen and with possession of some rudimentary equipment, can reduce property damage and provide the public with the all-important sense of taking action in the face of emergency. We address further the problem of foreknowledge and an alarm system in the last section of this report.

Representatives of the U. S. and Canadian Coast Guard with whom we have conversed and corresponded invariably speak with disappointment about the high level of citizen "emotionalism" that the spill produced and which made Coast Guard dealings with the public more difficult. This a central issue to which this entire report is directed. We intend to explore both the many causes of this emotionalism and its effects on disaster response. We are interested in pinpointing how the Coast Guard, who must deal with

TABLE 2: Timing of Alert to NEPCO Oil Spill for 97 Riparian Residents, by Location of Residence.

Timing of Alert	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
By 8 a.m., Wednesday, June 23	26 68%	7 35%	2 17%	35 50%
Later on Wednesday	11 29%	13 65%	7 58%	31 44%
After Wednesday	1 3%	0 0%	3 25%	4 6%
Total	38 100%	20 100%	12 100%	70 100%

Chi square significance = $p < .001$

Contingency coefficient = .47

Number of missing cases = 27

this emotionalism and is sometimes the target of it, can understand, reduce, and redirect this emotionalism. To conclude this section we examine one manifestation of this emotionalism: the horror and sense of death created by the sudden, enormous, and unexpected heavy oil in the river.

Though human lives were never in danger, a large minority of people we interviewed recalled vividly the image of death the oil produced in them. The following are representative of these recollections:

It was just like the world was dead, with no one going out and all that black stuff on the water.

It stilled the water; absolutely no waves--it was like a tomb.

The feeling of isolation and desolation was intensified by the absence of any wind and a sultry heat. It was as if the weather by intention refused to place a veil between our senses and the horror of the event. The oozy mess with its noxious fumes slithered by amidst an awesome hush; river traffic closed. Was our river dying? (From a letter to friends.)

There was virtually no boat traffic on the river for about four days. The atmosphere was weird--like a horror movie: too quiet. Just the strong smell and the sound of helicopters overhead. And that windless, perfectly flat water.

It was like a Hitchcock movie, when the slick appeared in the bay on that hot afternoon and slowly approached our docks.

Residents as far down the river as Waddington reported the same sense of helpless horror, waiting for the oil, then sighting the oil, and watching it close in on them.

The sense of death was real for the people who sighted oiled and dying wildlife or whose beloved pets were oiled and made themselves sick trying to clean themselves. For the many residents with a strong emotional attachment to the natural river, sighting dead birds, "fish flopping in the mess, trying to breathe," and so forth, was extremely upsetting. Futile efforts to clean animals, aggravated by helpers' ignorance and a high death rate among soiled animals, further raised the level of distress and the sense of damage.

Coupled with the other sources of outrage, impatience, anxiety, and ignorance, this horror produced a highly upset public in the NEPCO events. The Coast Guard, in its official role as on-scene commander, head of the Joint Response Team, and one of the most visible parties in the cleanup response, was in the difficult position of needing to be both technological and psychological, efficient and solicitous, a paramilitary decision-maker and a therapeutic agent. We address possible solutions to this unsatisfactory position in the final part of this report.

CHAPTER FIVE

SEARCH FOR INFORMATION AND THE EMERGENCE OF LEADERS

The way information collects and spreads is a complex and important part of the study of emergencies. The formation of public opinion and of action groups depends a great deal on the peculiar pattern of information flow which emerges for each emergency. And that pattern of information flow is heavily influenced by the pre-emergency social structure of the area.

In this chapter we shall report our findings on the information sources, the quantity of information, and the residents' evaluation of that information that dealt with the oil spill and cleanup. We are seeking ways the Coast Guard can best tie in to local communication channels, increase and improve information dissemination, and thus dissipate the morale-threatening rumors which inevitably arise over emergencies.

Local residents in a spill area mobilize for a spill response based on their local resources and the information available to them. In Organized Behavior in Disaster, Russell Dynes¹ reports that the mobilization of people and the rise of decision-making leadership is a difficult task communities have to undertake quickly after a disaster strikes. The disaster event, Dynes wrote, announces new tasks whose overall coordination arises as a byproduct of the search for information. That is, immediately after a disaster event, everyone is desperately in need of information. They seek one another out for answers, and the organization needed to meet the emergency results. Like a cosmic cloud forming a universe of planets, disorganized inquiries eventually coalesce in certain spots, on certain people, who become the core of organizations to deal with resident problems.

This process of forming action groups from every individual's search for information produces the so-called emergency social system, which responds to the threat. Later, when the threat of damage is gone, evolves the so-called therapeutic community, which tries to return conditions to normal. By its handling of the information flow and its recruitment of local leadership, the Coast Guard can assist the formation of the emergency social system and therapeutic community, both of which are necessary, however much responsibility remains with the Coast Guard.

Besides Government attempts to increase information through meetings and news releases, residents relied heavily for forming their opinions on personal observation and talking to each other. In 74 personal interviews, 38% of the people relied for most of their information on the mass media, especially radio and newspapers; another 24% relied on conversations

¹Dynes, Organized Behavior in Disaster, Chapter 9.

with officials in charge of the cleanup; but 38% relied most on personal observations or on other residents. There is some relationship between one's information source and how satisfied he or she is with the information available for use for the summer (Table 3). Official contacts and mass media seem to have been most satisfactory as information sources, according to river residents.

TABLE 3: Primary Source of Information about NEPCO Oil Spill for 97 Riparian Residents, by Rating Given to That Information

Primary Source of Information	Satisfied	Unsatisfied	No Answer	Total
Mass media	18 44%	3 21%	7 37%	28 38%
Observation; personal experience	3 7%	3 21%	3 16%	9 12%
Conversations with residents	9 22%	5 37%	5 26%	19 26%
Conversations with Coast Guard, contractors	11 27%	3 21%	4 21%	18 24%
Total	41 100%	14 100%	19 100%	74 100%

Chi square significance = $p < .08$
 Contingency coefficient = .35
 Number of missing cases = 23

From the 605 questionnaires returned from 1,775 riparian property owners, we find 21% relied on the mass media for most of their information, 3% relied most on official contacts, and over 75% relied most on personal observations or on other residents. This was particularly the case in the upriver, or heavily impacted areas; Chippewa Bay area residents, for example, relied on the mass media in only 4.5% of cases, but on personal experience and other residents in 93% of cases.

From the 501 questionnaires returned by residents in the "fringe area," or residences in Jefferson and St. Lawrence Counties not on the river, we learn that 42% relied most on mass media for information about events; another 42% relied most on personal experience at the river. Eighty-three percent of fringe area residents visited the river at least once during the summer of 1976, 65% going several times. This is not surprising when we recall that nearly 40% of those who returned questionnaires own or rent camps on the river. Thus 93% of all fringe area respondents report following the summer's events "very closely" or "with some interest."

Overall, we see that very few people relied on official sources for

their information, but those who did were among the most satisfied with the information available for their use. Table 4 shows what proportion of the riparian property owning population turned for at least some information to official sources. Five percent communicated only with the Coast Guard and 15% dealt only with the cleanup companies; another 28% dealt with both. Again, note that 43% of residents did not contact any official party and thus were deriving their opinions from other sources.

TABLE 4: The Number of Riparian Property Owners Contacting Officials During the NEPCO Oil Spill Response.

Contacts	Frequency	Percent
With elected representatives	10	1.7
With other government officials	10	1.7
With Coast Guard	32	5.3
With pollution contractors	93	15.4
With other agencies or commissions	26	4.3
More than one of above	173	28.6
No contacts made	<u>261</u>	<u>43.2</u>
Total	605	100.2

Half the people we interviewed who contacted government officials besides the Coast Guard were lobbying for better cleanup or prevention or an increase in government funds to cover cleanup costs. The other half claim that they were primarily giving or seeking information about wildlife, pets, federal regulations, the spill's history, or cleanup plans. In most cases, we noted, these calls resulted in frustration for the caller because state agencies or distant federal agencies knew less about the oil, the area, or what to do than the callers. These calls would have been better directed to a spill information center.

The data reveal that anywhere between 29% and 63% of various categories of residents in the spill area relied most on personal observations or other residents. The important centers for informal information were the marinas, the restaurants, the corner stores, and the yacht clubs and docks. Marinas are centers of contact for tourists and islanders and for virtually anyone with a boat. Marinas are also the loci for knowledge about the river, its laws, and the officials like the Coast Guard who monitor the river. Restaurants were meeting places for contractors, lunching businessmen of the area, government officials, visiting dignitaries, and tourists or residents who had been out to see the river for themselves. Restaurants were also the official meeting places for a number of groups who organized in response to the spill (see Chapter Six).

The corner stores in the smaller settlements along the river functioned like the marinas. Tourists, summer people, natives, and cleanup crew members would visit such stores several times a day for small purchases and news.

Certain individuals, either by their own initiative or by their role in their communities, assumed responsibility for approaching the Coast Guard and cleanup personnel regularly for detailed information and then dispensing this information to others. Some summer people and yearround residents volunteered or sold their services to the cleanup effort and became information sources: over 6% of the riparian property owners or members of their families assisted in the cleanup effort. Other individuals had personal contacts in organizations involved in the spill: the St. Lawrence Seaway Development Corporation, Sealand Restoration Company (a major contractor) in Clayton, and the Coast Guard station on Wellesley Island were the three agencies to which most connections existed. These organizations were called for information or requests, or sometimes they called residents to make reports or requests. One marina operator received calls from summer island customers offering to put their companies in as contractors on the spill; these offers he carried personally several times to the Wellesley Island command post or telephoned to friends in the cleanup companies. Commercial boat lines, marinas, and yacht clubs, because of their involvement with water traffic, were most often called by the government to give or receive reports and instructions. They in turn passed on what they learned from these encounters.

A partial list of other individuals or organizations regularly giving and receiving information has been compiled from our intensive interviews and is given below. It was not possible in our research to objectively weight the quality or amount of information they disseminated. The list, however, does provide clues to government as to the variety of people who may be recruited to serve as information sources in the event of a similar emergency.

1. The Fire Chief of Alexandria Bay Village, alerted in the early morning hours after the spill to take protective action.
2. The mayors of Alexandria Bay Village and Waddington Village who worked as community liaisons, observers at cleanup company and Coast Guard headquarters, and liaisons to state agencies.
3. The town supervisors of Hammond (the Chippewa Bay area) and Waddington, acting as liaisons and making town facilities available to the cleanup effort.
4. The superintendents of several riparian state parks, who provided claim and cleanup information to neighbors and customers.
5. Summer resident associations, which fulfilled many functions to be discussed in the next chapter.
6. Marinas, discussed above.
7. Corner stores, discussed above.
8. Alexandria Bay and Ogdensburg City Chambers of Commerce, which disseminated claim information, advice on publicity, and advertised the spill information numbers.
9. Residents who assisted in the cleanup, discussed above.
10. CLAW (Clean Land, Air, and Water), an environmental group in Waddington Village, acting as liaison to state agencies.

11. Riparian property-owning lawyers, who dispensed legal advice.
12. The district's Congressman and the Hammond Town Representative to the County Legislature, both riparian property owners, who acted as liaison to state agencies, observers at Headquarters, and organizers of information meetings.
13. The Crawford Insurance Agency, operating out of a temporary office in the village of Alexandria Bay for about six weeks after the spill, as claims representative for the New England Petroleum Company, the spiller.
14. The St. Lawrence Seaway Valley Sea Grant office, a federally funded agency to both promote tourism and recreation and preserve the natural environment, increased local communication by producing a weekly bulletin Soundings about the spill, claims procedure, legal rights, and related matters and mailing it to all businesses in the 62 mile spill area.
15. The St. Lawrence Seaway Development Corporation, located on the river at Massena, which both managed a portion of the river cleanup and handled a very large proportion of the news releases to radio and newspapers.

How do river residents themselves rate the quality of the information available for their use as victims or potential victims? Of the 65 people in our personal interviews who expressed an opinion about the information available to them, 72% were content with its quantity and quality. The remaining 28% recalled a constant discouragement from not knowing how long it would take to remove the oil, whether funds would last, how to clean their property or pets, where to go for equipment or accurate updated bulletins, and other questions, some of which could have been addressed by responsible officials had the resident known whom to call. Questions concerning claims, the organization of the Oil Spill Contingency Plan, river regulations, cleaning property and pets, sources of equipment, and the state of progress of cleanup were, in our judgement, all ones for which a spill information center could have provided assistance.

In an emergency like a massive oil spill, the need for information among spill area residents is prodigious. Residents need information partly so they can take appropriate action, and partly so they can know what to expect from such an unusual and upsetting event. Several problems in the Coast Guard's handling of public information should be noted. First, the Spill Control Center on Wellesley Island doubled as the public information center. Our interviews with Coast Guardsmen suggest that the volume of public relations that the center handled interfered with its management of the technical aspects of the spill. Second, being on Wellesley Island, the information center was relatively difficult for public access. The number of telephones and personnel to handle them were too few in the early weeks after the spill when the center was deluged with inquiries. There was no printed literature of a general nature about spills, cleanup, and precautions that could be distributed at any point. Professional Coast Guard public relations assistance arrived on the day after the spill and left several weeks later, turning over the difficult job to less experienced personnel without adequate on-scene instruction. Coast Guardsmen working along the river and public meetings held soon after the spill in Alexandria Bay and Chippewa Bay settlements helped to spread information. But because this was the first major spill for most of the residents, many people we interviewed recalled that one of their

biggest complaints regarded staying adequately informed; many made recommendations about public information procedures which we shall address in our recommendations.

Publicity about the spill and cleanup in the mass media, as we have noted, was an important source of information. It was also a source of consternation and dissension among parties involved in the spill. Of those people we interviewed, 47% had negative opinions of the media coverage, while 25% had positive opinions; 28% had no opinion. Among the 605 riparian property owners returning questionnaires, 52% rated the media coverage as adequate to very good; 11% gave negative ratings. Among the 501 fringe area residents, 66% rated media coverage as adequate to very good; 13% gave negative ratings.

The main reason for sending questionnaires to "fringe area" residents was to determine the sources of their information about the spill, how they rated their information, and whether upon seeing the river--which the majority of them did--conditions appeared better or worse than they had read or heard about. Nearly even numbers relied most heavily on news or on personal observations along the river, and Table 5 shows that their opinion of the publicity varies accordingly: those who rely mostly on personal observation along the river are most discontent with the news.

TABLE 5: Primary Source of Information About the NEPCO Oil Spill for 501 Fringe Area Residents and Tourists, by Rating Given to News Media Performance.

Primary Source of Information	Very Good to Good	Adequate	Poor to Very Poor	No Opinion	Total
Contacts at river	71 33%	48 55%	44 77%	47 50%	210 47%
Conversations without observation	13 6%	5 6%	2 4%	9 10%	29 6%
News sources	128 61%	34 39%	11 19%	38 40%	211 47%
Total	212 100%	87 100%	57 100%	94 100%	450 100%

Chi square significance = $p < .001$
 Contingency coefficient = .30
 Number of missing cases = 51

We checked to see if this discontent was strongest among the camp users or those who visit the river as tourists, and found that the camp owners were somewhat more discontent with the publicity. Fifty-seven percent reported news coverage as adequate or better, while 75% of the tourists gave those ratings.

How the conditions of the river compared to what one had heard or read depended a great deal on what information one relied upon. Table 6 shows a strong association between these two variables. Those who relied primarily on personal observation feel the river looked worse than they had heard, while those relying upon the news feel it looked better. We interpret this to mean that heavy reliance upon news sources created an overly negative impression of contamination, but seeing it at close hand was also shocking, especially in the early weeks. This interpretation is supported by comparing when respondents saw the river with whether conditions were better or worse than they had heard. People who saw the river in August or later felt the publicity and hearsay had been overdone but those who saw the river early were more upset by what they saw.

TABLE 6: Comparison of Actual Observation of River After NEPCO Oil Spill for 501 Fringe Area Residents and Tourists, by Primary Source of Information

Comparison of Observations	Contacts at River	Conversations w/out observation	News Sources	Total
River actually looked worse than I'd heard	88 43%	1 4%	15 12%	104 29%
River looked about the same as I'd heard	74 36%	14 58%	49 37%	137 38%
River actually looked better than I'd heard	43 21%	9 38%	66 51%	118 33%
Total	205 100%	24 100%	128 100%	359 100%

Chi square significance = $p < .001$
 Contingency coefficient = .37
 Number of missing cases = 142

Between 11% and 47% of different sectors of the public on the river, to review, are upset with media coverage, with the precise figure probably closer to the first. What we frequently observed, and which we label the "Media Dilemma," is that the discontent stems from two opposing views of the media's function. Table 7 indicates that the more oil a resident received, the more likely he was to be unhappy with the media coverage. Table 8 indicates that upriver areas are least content with news coverage of the spill and cleanup. Our interviews show, however, that in the upriver areas, Alexandria Bay and Chippewa Bay, where impact was greatest, the former community is discontent with the media because the publicity may have damaged the summer's tourism, while the latter community is

discontent because coverage did not adequately emphasize the extent of impact in a way that would provoke public opinion in favor of improved prevention and cleanup.

TABLE 7: Impact of NEPCO Oil Spill on Property of 97 Riparian Residents, by Rating Given to Publicity of Spill.

Impact of Oil	Positive Judgement	No Opinion	Negative Judgement	Total
No impact	1 4%	4 15%	1 2%	6 6%
Some oil	17 71%	11 41%	19 41%	47 49%
Heavy impact	6 25%	12 44%	26 57%	44 45%
Total	24 100%	27 100%	46 100%	97 100%

Chi square significance = $p < .03$

Contingency coefficient = .32

TABLE 8: Rating Given to News Coverage of NEPCO Oil Spill by 605 Riparian Property Owners, by Location of Residence.

Rating of News Coverage	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Good to very good	92 34%	27 29%	88 41%	207 35%
Adequate	51 18%	16 17%	35 16%	102 17%
Poor to very poor	44 16%	12 13%	11 5%	67 11%
No answer	88 32%	39 41%	82 38%	209 37%
Total	275 100%	94 100%	216 100%	585 100%

Chi square significance = $p < .01$

Contingency coefficient = .22

Number of missing cases = 20

Radio and press reporters were on the scene of the spill from the first day. They attended Coast Guard press conferences on Wellesley Island, watched cleanup crews, interviewed local businessmen and men-on-the-street, and took abundant photos and videotapes. A large number of community residents were interviewed by telephone about their reactions to the spill. News of the spill reached the "Today Show" and the "CBS Evening News," where the effects of the spill were viewed as potentially harmful for at least the entire summer. The reporters focused almost entirely on the Alexandria Bay tourist area; other regions of the river received less attention. This uneven attention was partly because the Coast Guard Command Station with its press officer was at Alexandria Bay, and partly because the other areas of the river were less visible, less populated, and less well-known.

The Media Dilemma arises from the following situation: many businessmen involved in tourism who claim a loss for the summer emphasize that cleanup was adequate but that they were hurt mostly by the extensive negative publicity the event received in the news; downriver, especially in the Chippewa Bay area, people claim loss for the summer because cleanup was inadequate, stemming from inadequate coverage of the extent of damage. They were also hopeful the news could act as goad for improved conditions in future.

Newspaper content analysis of the Watertown Times, which is published 40 miles from Alexandria Bay and provided the fullest coverage in column inches of the spill events, is not fully supportive of either position. In the first five days following the spill on June 23, 862 column inches, contributed mostly by staff reporters and photographers, were devoted to spill causes, effects, public reaction, and cleanup efforts. Subsequent news coverage was predominantly news releases by the Coast Guard and Seaway Development Corporation with submitted photographs. This coverage most frequently discussed cleanup procedures, the state of finances to cover cleanup costs, and information pertinent to citizen damage claims. Coverage was usually between 10 and 25 inches and ceased to be daily by July 8. There was a slight rebound in news coverage at the time of the commercial pollution contractor company layoffs in late July, and again at the time of Congressman McEwen's Citizen Forums to air complaints in late August. Subsequent news coverage was occasional and brief. It is noteworthy that only three letters to the editor ever appeared. There was one advertisement and a news story concerning the Group Against Seaway Pollution (GASP), an ad hoc organization predominantly of Chippewa Bay businesses and summer residents, which lobbied for adequate funds and prompt cleanup.

In summary, then, there was massive news coverage in the first few days by journalists, but also regular reports for weeks through news releases by parties responsible for the spill response. The early massive reports, of course, which acquired nationwide coverage, emphasized the accident; the remainder of the summer's reports, which did not acquire nationwide coverage, emphasized restoration. The needs of both parties in the Media Dilemma were met to a degree. But because both parties wished to have more influence on media coverage, both were discontent. The mass media, by its nature, as always, remained a rather distinct third party to the events. The Coast Guard, in responding to a future spill in the area,

will have to display great skill in bringing these three parties' interests together.

Coast Guardsmen in interviews and correspondence with us have expressed a dissatisfaction with news coverage of the spill and cleanup, and in several subsequent small spills on the river have practiced acting sooner to approach the news bureaus and to involve them as parties to the response. Of the ten Coast Guardsmen who replied to our queries by letter, representing about 16% of all Coast Guardsmen involved in the spill, 50% felt the news coverage was insufficient for both their own and residents' purposes; 60% felt it was inaccurate; 60% felt it was sensationalistic rather than well-balanced; and 40% felt the overall effect of media coverage was harmful to Coast Guard efforts and resident needs.

To summarize this chapter, we have noted that the public did not form their impressions or gain information primarily through official parties; in searching for the information people felt they needed, they relied upon a web of informal communications that the Coast Guard might be able to enlist in a future oil spill. There was a felt need for much more information, and a dissatisfaction in the river areas of main oil impact with the mass media, upon whom a large minority of people relied for information but which created what we call the Media Dilemma. Recommendations for handling some of these problems are detailed in our recommendations.

CHAPTER SIX

ORGANIZATION AND SEARCH FOR RESPONSE

Residents along the river began to respond to the oil spill at the same time that they were frantically seeking and relaying information, and, of course, much of their response was influenced by their information. In this chapter we shall first examine the individual responses to the presence or threat of oil on residents' shorelines. Then we shall identify the attempts at group response, at organization, and liaison with the Coast Guard and other responsible parties to the spill cleanup.

As soon as they were alerted to the spill, many people moved to protect themselves from the oil. About 14% of the residents who returned questionnaires or who were interviewed stated that they delegated responsibility, usually from out of town, to a caretaker, neighbor, or marina to protect their boat, dock, or beach. Another 44% stated that they were present on their property and took some protective action themselves. Forty-two percent of the residents took no action. Table 9 suggests that slightly more self-protective action was taken in downriver areas than in Alexandria Bay, which was hit almost immediately; nevertheless, 58% of the residents who were alerted before the oil reached them made some efforts to protect themselves from contamination.

TABLE 9: Reactions of 605 Riparian Property Owners at Alert to NEPCO Oil Spill, by Location of Residence.

Reaction to Alert	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Delegated action	27 14%	14 21%	20 13%	61 14%
Self-protection	77 39%	30 45%	74 50%	181 44%
Did nothing	94 47%	23 34%	55 37%	172 42%
Total	198 100%	67 100%	149 100%	414 100%

Chi square significance = $p = .10$
 Contingency coefficient = .17
 Number of missing cases = 191

Did previous experience with an oil spill, either as a victim or as a cleanup worker, lead to active self-protection? Our interviews reveal that it did to some extent. Thirty percent of the spill area residents were veterans of a previous spill. Many of these were in the Oak Point region, veterans of the 1974 Sarnia spill, and the most active in self-protection in 1976. Upriver, the Chippewa Bay area people, with a little less time to react and a little less experience with spills, were slightly less active; nevertheless, they were more active than Alexandria Bay, which had no time to react.

Self-protection took a number of forms. The most common response was to remove one's boat from the water, help one's neighbors do the same, or remove floating docks, in the few cases where these existed. Other efforts were the construction of log booms to encircle boats or docks, spreading hay on beaches, or placing absorbent pads against threatened docks or beaches (especially in the Oak Point area, which made use of handouts by contractors in the nearby village of Morristown. This is discussed further below.) Twenty-eight of the 97 people we interviewed took one or several of these actions. Most believe their efforts saved them somewhat from contamination. Those who constructed makeshift booms were the least satisfied, because their construction or material was poor or because waves lifted the oil over the booms.

In addition to taking self-protective action, many residents exerted great effort to clean their own property. Twenty-five of the 97 people we interviewed, most of whom reside in the heavily contaminated areas, attempted to clean their own property, both before and after the cleanup crews had arrived. Several said they were instructed by Coast Guard monitors not to clean their property, but not all took this advice. Several others said they discouraged the cleanup crews from working on their property, choosing to do their work to their own standards.

In addition to cleaning their own property, a number of residents and waterfront businesses offered their services to the official cleanup efforts. Six and one-half percent of the 605 riparian property owners and businesses returning questionnaires stated that they acquired employment or a subcontractor's position during some part of the summer.

Another of the most common responses to the spill was to apply for a damage claim with the Crawford and Crawford insurance office established in Alexandria Bay Village by the spiller expressly for this purpose. Thirty percent of riparian property owners returning questionnaires said they filed a claim with that office, and 83% of these say they were adequately compensated. Another 4% initiated legal action against the spiller, deeming their property damage in excess of the standard claim allowance. Nearly 65% filed no claim or suit. The results from the personal interviews were roughly the same, but with a slightly larger percentage of disgruntled claimants and suit plaintiffs.

The degree of oil contamination, predictably, had a significant influence on claims and suits. Fifty-six percent of riparian property owners who stated they were heavily impacted filed a claim, and another 11% initiated a lawsuit. Almost 32% of the heavily impacted did neither, however. Almost 75% of those who received only light contamination did not file a claim or a suit.

Again, predictably, resident opinion of the insurance company performance after the spill depends heavily on how a claim was treated.

Seventy-one percent of riparian property owners who filed a claim and were compensated gave the insurance company a good rating. Most of the people we interviewed who dealt with claim adjusters on their property or at the Alexandria Bay office judged the latter's behavior as very respectful and considerate. But 75% of those who filed and were not adequately compensated, and 61% of those who initiated a lawsuit, gave the insurance company poor to very poor ratings. Incidentally, those who neither sued nor filed a claim are as likely to give the company a bad rating (3%) as a good one (6%), though most (82%) have no opinion.

How does the public rate the response of their fellows, the other residents along the river? Results from the questionnaire returns show that residents are no more nor less satisfied with their own response than they are with the response of the responsible parties. Thirty percent give residents good ratings, 9% give bad ratings, 20% give nonevaluative responses ("they were upset," "they had to change their summer plans," "their business was hurt," etc.) and the remaining 41% give mixed ratings or have no opinion. Positive ratings are given for being patient and cooperative, cleaning their own property, working on the spill, and lobbying for better spill prevention. Negative judgements are given for trying to make the spill a profitable opportunity (by overcharging the contractors, or filing exaggerated claims or lawsuits) and for attempting to get cleaned up ahead of one's neighbor. The most commonly expressed complaint of one's neighbors was of their avariciousness; many people we interviewed expressed anger at those who sued the spiller, because the plaintiffs "put the company on the defensive and made it harder for us small guys to get our small claims."

Soon after the spill and in response to the search for information, a number of pre-existent and emergent resident groups became active for a variety of purposes. In the following discussion, we shall move downriver with the oil in identifying these groups and their functions.

The first organization activated in Alexandria Bay Village was the Volunteer Fire Department, directly informed by the Coast Guard Station on Wellesley Island within an hour of the grounding of the barge. After serving for several hours as spotters for fire hazards and responding to a false alarm prompted by the fog and strange smell in the air, this organization retired from action and never returned to play a role in the following events.

The first organized meeting after the spill was the planned regular dinner meeting of the Alexandria Bay Chamber of Commerce, Wednesday evening, the day of the spill. At that meeting the main discussion was about the negative publicity and the need to spread reliable information in the town. The members of the Chamber's executive board, after hearing alarmist comments in the news, elected a new slate of officers who were unified in their opinion that bad publicity would ruin the village more than the spill itself. The Chamber immediately planned an information meeting for within the next two days and established close conversations with the mayor, whom they felt had initially painted too grim a picture of the problem in the village for the news reporters.

The mayor of the village was active from the morning of the spill, assuming the position of liaison between the Coast Guard headquarters and his village, and thus becoming a main source of information. On the day

of the spill, he attempted unsuccessfully to assemble the Village Board to plan a course of action. It was a work day and board members were at their jobs, so he sought a consensus by telephone conversations with each of them. He was constantly called by residents and news reporters. He attempted to involve the larger political divisions of which his village was a part in helping cleanup and making plans for future emergencies, with mixed success. Besides notifying Congressman McEwen's office in Albany and asking for help, the mayor called the Jefferson County Civil Defense office, and with their advice, initiated an appeal through his town supervisor to the Governor to declare a state of emergency in the area. These efforts were unsuccessful and left the mayor to face his angry constituency for contributing to the state of alarm.

During the Wednesday night Chamber of Commerce meeting, the chamber asked the mayor to arrange a general meeting for Friday (June 25) with the Coast Guard. The mayor invited the Coast Guard to explain their plan and answer questions. Held in the village's convention center, the meeting was attended by about 150 people, as well as Watertown Times reporters and officials from the St. Lawrence Seaway Development Corporation and the Thousand Islands Bridge Authority. The crowd was excited and hostile, "wanting a good report but fearing the worst." The Coast Guard On-Scene Commander explained the priorities for cleanup, the machinery to be employed, and assuaged fears that the oil would still be in the area during Alexandria Bay's first big summer tourist weekend, July 4. Most residents' questions concerned cleanup, claims, and bad publicity. A smaller number of residents' comments concerned future preventive measures and the need for political action. The general impression of Alexandria Bay village officials is that the Coast Guard did an excellent job in calming fears and increasing others' confidence in them. The view of residents from further downriver who attended the meeting was that Alexandria Bay, with the Coast Guard's unintentional collusion, would clamp down on the news of the extent of damage and incorrectly report the work finished as soon as Alexandria Bay was presentable. Hence downriver areas feared they might get less thorough treatment and any political campaign to promote stricter legislation would lose the backing of the press.

The Alexandria Bay Chamber of Commerce called a second meeting Friday, July 2, a week after the first, to review progress on the cleanup and to consider what publicity efforts they would make to draw tourists. About 200 people attended the meeting and they were clearly divided about what they felt most important to talk about: handling publicity and saving the summer's business--or taking organized action to prevent future oil spills. The Coast Guard attended to answer questions and make a report, but most of the action was dissension among the factions attending the meeting. The Alexandria Bay residents were generally pleased with cleanup progress and were concerned about a publicity campaign. The downriver residents wished to make clear that the oil was not gone from their area and that they expected this accident to precipitate further safeguards against future spills on the river. Following this meeting, the downriver citizens separated to form their own organization to respond to the spill. Hard feelings were intensified and the two areas of the river pursued different strategies for the rest of the summer. The Coast Guard, quartered nearest to Alexandria Bay, desirous of generating publicity that created optimism and demonstrated their competence, devoting all their resources

to the immediate cleanup task, and beginning their efforts in the Alexandria Bay area, were construed to have taken sides in this controversy.

Another organized group action besides that of the Chamber of Commerce was the law suit for \$2 million claiming negligence and nuisance by the New England Petroleum Company, filed by a group of Alexandria Bay businesses and summer residents owning islands or parts of islands in Alexandria Bay. Residents' response to this group action can be put in perspective by recalling that the hostile feeling of a large number of residents toward the discharger in the early days after the spill is well documented in our interviews. People were angry and claiming that they were "going to make NEPCO pay for this." But since the Chamber of Commerce effectively mobilized the business community in another direction, the suit group was an embarrassment, partly because it implied that there would be damage to the tourist industry--hence the oil must be bad in the area--and partly because the plaintiffs were considered to be too interested in making money from the spill. Very few people we interviewed believed that a civil suit was a valid weapon against industry carelessness. As one official put it, "We had a 'Jaws' situation here," an extreme threat to the village economy that most people were not eager to have widely publicized.

A number of summer resident groups in the Alexandria Bay area, long-standing organizations of cottage owners in small settlements along the shore or in the islands, responded to the spill. Their summer meetings devoted time to sharing impressions, reports from invited Coast Guard or insurance representatives, and consideration of a group suit or claim. Certain individuals in each of these settlements, because they were lawyers, club officers, or personally interested, acted as the group's liaison with the contractors, the Coast Guard, and the insurance company. Usually they collected information and lobbied with authorities on behalf of their area.

People also organized to respond to the spill in the downriver areas, especially Chippewa Bay, which was heavily contaminated with oil because of the currents and its natural ladle shape. Chippewa Bay area residents are less numerous and more dispersed along the shore and among the islands than are residents of Alexandria Bay. There is no populated hub of activity like the village of Alexandria Bay. Nevertheless, there are two centers for social interaction: Schermerhorn's Landing, a marina operation, and the Hammond Township dock, in the village of Chippewa Bay. The Chippewa Bay Yacht Club dock and store, owned by an active summer resident group of over 60 island and shoreline property owners, is located next to the township's dock. These two centers played key roles in organizing the Chippewa Bay area residents' response to the spill.

Hammond Township has two rather distinct populations: the yearround residents, many of whom have shoreline property, and the islanders, or "summer people." Each is polite to the other, but they had never engaged in joint action before. The oil spill brought local business, yearround resident, and summer people interests together for the first time, in the creation of Group Against Seaway Pollution, or GASP.

A number of Chippewa Bay area residents attended the two public meetings in Alexandria Bay, and argued for organized effort to prevent future spills. Receiving little support in Alexandria Bay Village for

this tactic, about 40 Chippewa Bay residents and islanders met after the July 2 meeting, named themselves GASP, elected an executive committee, and made plans for contacting important individuals and interesting them in GASP's cause. They raised a collection among them to begin a newspaper ad campaign and a newsletter, fearing that regional newspapers were favoring the Alexandria Bay approach to the spill. Initially, the group was equally concerned with agitation for proper cleanup in areas besides Alexandria Bay, and, to that end, met with their Congressman during his tour of the spill, worked closely with the St. Lawrence County legislator from their area, and talked frequently with Coast Guard leaders. Members of the executive committee of GASP also acted as community liaison to the Coast Guard by visiting the command post on Wellesley Island to plead Chippewa Bay interests and report oil. As the cleanup during July showed greater attention to Chippewa Bay, GASP shifted its focus to reducing future spills and their impact. GASP's agitation assisted their county legislator in passing through the county legislature a declaration of a state of ecological and economic "emergency"--the same declaration that had been unsuccessful in Jefferson County for Alexandria Bay--and requested that small claims against NEPCO be handled by the insurance carrier and not federal courts. The legislature also unsuccessfully urged St. Lawrence Seaway Development Corporation to temporarily ban night transport of oil on the Seaway. GASP renewed its agitation in late July, "camping on everyone's doorstep," as one person put it, when the Federal Revolving Fund for cleanup was dwindling.

Islander residents, or summer people, used their political connections to the fullest by writing letters to Congressmen from their home districts decrying the frequency of accidents on the Seaway and the need for money to clean it up and legislation to prevent accidents. Others who in their professional lives had personal contacts in government, marine legal firms, and relevant private businesses, put these contacts to work in many ways: research on oil spill technology or legislation, political push in Congress or the Armed Forces, or support from other environmentally protective organizations such as the Sierra Club.

GASP sought a representative membership of all downriver areas and social groups. Representatives of townships and citizen groups further downriver were invited to join. The executive committee included both natives and islanders. The spokesman for the group to the Coast Guard and other officials was an islander, a retired Navy officer with Pentagon experience, who, it was felt, would be most compatible with the Coast Guard and officials. Alexandria Bay residents were conspicuous by their absence for several reasons. By the middle of July, tourist business had picked up briskly in Alexandria Bay, so businessmen had little time to devote to meetings. Second, Alexandria Bay was cleaned quickly and relatively well, and residents did not want to appear ungrateful by further agitation. Finally, news coverage of GASP's grievances could only damage tourists' image of Alexandria Bay as decontaminated and ready for business.

GASP remained active throughout the summer. They were in constant contact with the County Legislator, and through him with their Congressman, with their Town Supervisor, the Coast Guard leadership in Alexandria Bay, the St. Lawrence Seaway Development Corporation, the St. Lawrence-Black River Planning Board, various federal offices in Washington, the pollution contractors (some of whom had hired GASP members), the regional

news offices, the Environmental Protection Agency, the Saint Lawrence-Eastern Ontario Commission, and the State Department of Environmental Conservation. Representatives of the group presented several prepared statements expressing disappointment with the present cleanup and concern about future spills at Congressman McEwen's Public Forums, which were held in August in Alexandria Bay and Ogdensburg to review the summer's events.

Downriver from Chippewa Bay no special groups formed to deal with the oil spill events. Individuals from Lisbon Township and Waddington Township, areas on the river between Ogdensburg and Massena, were active in GASP. An anti-nuclear group in Waddington, Clean Land, Air and Water (CLAW), which had formed several years before to combat plans to involve the township in a nuclear park, declared its support for GASP's cause and delivered prepared testimony at the Ogdensburg Public Forum in August. The State Legislator, a resident of Waddington, was urged by CLAW to express concern publically that funds for cleanup were running out and that the Waddington area might not be adequately cleaned. This meeting was effected by a Waddington businessman, in concert with the pollution contractor working in the area and village officials, and was attended by local radio station personnel and members of the Coast Guard and the village. Waddington officials were concerned that their village shoreline would not be cleaned in time for their annual regatta in July, an important event for the area, which does not have a large tourist industry. Coast Guardsmen who worked in the Waddington area contrast the public response there with that of Alexandria Bay. Waddington is far more socially homogeneous. Most people are yearround residents, so information spread more quickly. Numerous area officials were in constant communication with the Coast Guardsmen monitoring the area, with the pollution contractors (one of which was the Seaway Development Corporation from Massena, which took pains to address residents' problems), and with the crews, most of whom were familiar to residents.

As for other examples of local organizations responding to the spill, Lisbon Township's legislator toured the spill area with Congressman McEwen and supported the county declaration of ecological and economic emergency. Ogdensburg's Chamber of Commerce leaders played a role as intermediaries between their town and the Coast Guard and New England Petroleum Company, the spiller. For example, the executive manager of the Ogdensburg Chamber of Commerce was instrumental within the first few days of the spill in discovering and disseminating in the newspapers information about spill damage claims procedures with NEPCO's insurance carrier. The extension agent of the local Sea Grant Advisory Service, a branch of the New York State Sea Grant Institute responsible for promoting tourism and recreation and preserving the natural environment, devoted his weekly bulletin, Soundings, to the oil spill, claims procedures, legal rights, pollution legislation, and related matters, and mailed it to all businesses in the 63 mile spill area.

Several examples of summer resident organizations responding to the spill may be noted. The Wilson Hill Residents' Association, representing a shoreline residential area near Massena, organized a group claim of \$25 per shoreline property, and pooled the money for use by the Association to improve their recreational facilities. Unfortunately, we interject, none of this money was spent on protective material for use in a future

pollution emergency.

Perhaps the most unusual example of community response to the spill is the case of the Oak Point residents. Oak Point, about five miles downriver from Chippewa Bay, is inhabited mostly by summer people, and includes a small tourist hotel and a marina. Oak Point was the center of the large Sarnia spill of 1974, and so the residents were very much aware of what might be coming their way. Groups of residents worked to pull pleasure boats out of the water and to drape their docks and shores with absorbent pads that word of mouth reported were being distributed in nearby Morristown. Residents who had served as information gatherers and liaisons with officials in 1974 again assumed their roles. The Oak Point Residents' Association met to consider future self-protective measures. One resident owned a small steam hose outfit, which neighborhood youths borrowed to clean residents' boats. Some residents attended GASP meetings. Overall, the level of group action in Oak Point concerning self-protection, cleanup, and future plans was at least as high as Chippewa Bay's and is due, we believe, to prior experience with a major spill.

Taking the spill area from Alexandria Bay to Massena as a whole, however, the riparian settlements which did not respond in some organized fashion to the spill outnumber those that did. Our 97 interviews also reveal that the Chippewa Bay area was by far the most extensively organized area of the river, in large part because of the efforts of GASP. Alexandria Bay, catered to earliest, organized for a shorter time and less extensively. Forty percent of all those we interviewed reported attending meetings of residents during the summer to share impressions, to report or be reported to, or to make decisions about cleanup and prevention.

To conclude this chapter, we note that though the Coast Guard, facing a mammoth technological and organizational task, may have desired the public to remain calm, be patient, and allow the work to follow its course, the public attempted to do otherwise. Perceiving an enormous threat to their livelihood, property, normal activities, or the natural environment, the public attempted to organize. When residents managed an active response--self-protection or lobbying with responsible parties, for example--they were attempting to influence the course of events that the Coast Guard was charged with supervising: avoiding contamination, cleaning the shore, spreading information, and acquiring sufficient funds, to mention a few. When concerned residents were unable to actively respond, their angry sense of helplessness grew.

Residents organized in order to 1) satisfy the desire for a vast amount of information about who was doing what, when, and how could this event have occurred, 2) help themselves, and 3) influence the Coast Guard.

Residents who were able to respond in time to protect their property were, on the whole, convinced it was worth their efforts. But the oil struck the heavily populated areas first, and many residents downriver with advance warning didn't know what to do, so success was restricted.

Residents were always worried about preferential treatment. Knowing that funds were running low and that cleanup was slowing down and might stop, and knowing that the spiller's liability was limited, people feared that business or wealthy and powerful residents' interests were getting special attention. So they organized to plead their case, file their claims, or agitate with the Coast Guard for stricter preventive measures.

The types of groups that responded to the spill may be roughly categorized as social, economic, and political. Social groups are exemplified by summer resident associations, yacht clubs, and neighborhoods. Economic groups are exemplified by chambers of commerce. Political groups are represented by village or township governments, and ad hoc groups like GASP. Except for the regional governments, each of these groups is a special interest group responding to what it perceived to be an unprecedented situation without provisions for adequate local representation. As special interest groups, their goals did not mesh well. Some sought more thorough decontamination of private property and more publicity that conditions were not back to normal yet; others sought to protect the summer's business with tourists; yet others emphasized the campaign for prevention of future pollution.

There are definite obstacles to organization along the river by anything other than these narrow interest groups. The time of the spill caught many people in their busiest time of year. The social heterogeneity of the region is pronounced to begin with and most occupation of the river terrain is seasonal, making a sense of "community" difficult. Overarching representation of the spill area, supplied in part by the district's Congressman and federal or regional organizations like the Environmental Protection Agency or the Saint Lawrence-Eastern Ontario Commission, did not mediate sufficiently what was, in effect, a political crisis as well as a pollution crisis. Responses from the questionnaires to riparian residents, fringe area residents, and tourists suggest this is so. When asked to rate the performance during the spill of their elected officials and government agencies normally involved on the river, 26% to 35% gave an adequate or better rating; 16% gave a poor or very poor rating; the remaining 50% to 58% didn't know. These were the most negative or non-committal ratings given to any participants in the spill response.

The significance of these observations is that in the absence of other parties, the Coast Guard, which was taxed to its fullest dealing with the oil, was also obliged to mediate the area's political problems.

CHAPTER SEVEN

REACTIONS TO THE COAST GUARD

In this chapter we shall examine how many people along the river had direct dealings with the Coast Guard, what impression these dealings made on them, how area residents rate the Coast Guard's performance as leader of the spill response, and how residents interpret the Coast Guard; that is, what meaning they attach to the Coast Guard as an organization and as leader of the spill response. We shall be concerned in this chapter primarily with the perceptions and opinions of the spill area victims. To provide another angle on the residents' perceptions, we shall examine opinions of Coast Guard personnel who worked on the spill. Finally, we shall take a brief look at the relations between the Coast Guard and the cleanup crews whom they monitored; because such a large percentage of crews were local people who carried impressions from their work back into their communities, we believe their relations with the Coast Guard influenced residents' perceptions.

Among the persons we interviewed, over one-half had some personal or telephone conversations with Coast Guard personnel. Among those riparian property owners returning questionnaires, somewhere between 5% and 30% of various subgroups had conversations with Coast Guard personnel. About 80% of all contacts between Coast Guard and residents were between monitors and riparian property owners when the former were surveying contaminated property or observing the work of the cleanup crews.

The residents' opinion of the overall performance of the Coast Guard as leaders of the spill response is presented in Table 10. We see that a majority of riparian property owners consider the Coast Guard to have done at least an adequate job. Tourists and residents in the fringe areas, i.e. towns in Jefferson and St. Lawrence Counties not on the river, rate the Coast Guard's performance even more highly, with almost three-quarters giving an adequate or better rating. Among the residents we interviewed personally and in greater depth, the ratings were not quite as high: a majority gave them good marks for trying but only about 29% concluded that their work was good or successful (Table 11). What explains the more negative opinions in the personal interviews? Different data collection methods invariably arrive at somewhat different results, and perhaps the fact that our interview sample contains a smaller percentage of residents with uncontaminated property may account for the results. Some support for this logic is given in the following discussion.

What factors produce positive or negative ratings of the Coast Guard's performance? We examined the possibility that different areas of the river, receiving different amounts of oil, peopled by different kinds of residents, cleaned at different times, and at varying distances from the Coast Guard's headquarters in Alexandria Bay, would have significantly different opinions of the Coast Guard performance. Results from the

questionnaire to riparian property owners did not reveal any relationship between location along the river and opinion of the Coast Guard performance, but results from the personal interviews did (Table 12). The Alexandria Bay area is most positive about the Coast Guard, and downriver areas, contaminated longer, and harder to clean because of the natural configuration of the river in those areas, are most negative. Finally, those who were least personally affected, the tourists and fringe area residents, are most positive about the Coast Guard, with tourists only slightly more positive than camp users whose waterfronts were contaminated.

TABLE 10: Rating Given to Coast Guard Performance in NEPCO Oil Spill, by Type of Resident.

Rating Given to Coast Guard	Riparian Property Owners		Fringe Area Residents & Tourists	
	Frequency	Percent	Frequency	Percent
Very good	123	20.3	154	30.7
Good	102	16.9	135	26.9
Adequate	106	17.5	85	17.0
Poor	65	10.7	32	6.4
Very poor	20	3.3	17	3.4
No answer	<u>189</u>	<u>31.3</u>	<u>78</u>	<u>15.6</u>
Total	605	100.0	501	100.0

TABLE 11: Rating Given to Coast Guard Performance in NEPCO Oil Spill by 97 Riparian Residents.

Rating Given to Coast Guard	Frequency	Percent
Positive judgement	28	28.9
"They tried but failed"	24	24.7
Negative judgement	15	15.5
No answer	<u>30</u>	<u>30.9</u>
Total	97	100.0

TABLE 12: Rating Given to Coast Guard Performance in NEPCO Oil Spill
by 97 Riparian Residents, by Location of Residence.

Rating Given to Coast Guard	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Positive judgement	18 60%	2 9%	8 53%	28 42%
"They tried but failed"	7 23%	14 64%	3 20%	24 36%
Negative judgement	5 17%	6 27%	4 27%	15 22%
Total	30 100%	22 100%	15 100%	67 100%

Chi square significance = $p < .003$

Contingency coefficient = .44

Number of missing cases = 30

How a resident kept informed of events during the cleanup also influences his opinion of the Coast Guard performance. Table 13, based on questionnaire returns from riparian property owners, reveals that the most negative opinions are held by those who relied primarily on what they saw of the cleanup operation. The most positive opinions are among residents relying primarily on personal dealings with Coast Guard personnel or cleanup crews; in other words, a favorable impression was created by close contact with responsible parties. Residents who relied on secondary sources for information about events--conversations with neighbors and following the news--usually refused to judge the Coast Guard. In our other survey among tourists and fringe area residents, different sources of information had less differential effect on their rating of the Coast Guard performance, but the most negative ratings came from those relying primarily on personal observation of events (Table 14).

Among those residents who did have direct dealings with Coast Guard personnel, a large majority felt they had been treated well. Table 15 shows that people we interviewed who felt they had been pleasantly dealt with by Coast Guard personnel outnumber the disappointed by a margin of three to one.

What specific features of Coast Guard performance were identified as deserving compliments or criticism? We asked riparian property owners these two questions, and Tables 16 and 17 show the results from 605 questionnaires returned. Over half of all property owners did not answer the questions, but of those that did, the Coast Guard's overall organization and management of the cleanup operation was complimented most often, with their businesslike and respectful attitude toward citizens and the cleanup task the second most highly praised behavior. Speed and

TABLE 13: Rating Given to Coast Guard Performance in NEPCO Oil Spill
by 605 Riparian Property Owners, by Primary Source of Information about Events.

Rating Given to Coast Guard	Pollution Contractors or C. Guard	Personal Observation	Conversations with Residents	News	Total
Good to very good	13 65%	132 39%	23 34%	40 34%	208 38%
Adequate	4 20%	66 19%	14 21%	11 10%	95 17%
Poor to very poor	1 5%	75 22%	0 0%	4 3%	80 15%
No answer	2 10%	67 20%	30 45%	62 53%	161 30%
Total	20 100%	340 100%	67 100%	117 100%	544 100%

Chi square significance = $p < .001$

Contingency coefficient = .37

Number of missing cases = 61

TABLE 14: Rating Given to Coast Guard Performance in NEPCO Oil Spill
by 501 Fringe Area Residents and Tourists, by Primary Source of Information about Events.

Rating Given to Coast Guard	Contacts at River	Conversations Without Observation	News	Total
Good to very good	112 53%	23 79%	118 57%	253 57%
Adequate	38 18%	2 7%	37 18%	77 17%
Poor to very poor	41 20%	0 0%	5 2%	46 10%
No answer	19 9%	4 14%	49 23%	72 16%
Total	210 100%	29 100%	209 100%	448 100%

Chi square significance = $p < .001$

Contingency coefficient = .32

Number of missing cases = 53

TABLE 15: Impressions of 97 Riparian Residents Concerning Coast Guard's Treatment of Them During NEPCO Oil Spill Cleanup.

Impressions of Treatment	Frequency	Percent
CG pleasant and facilitating	25	26
CG pleasant but noncommittal	9	9
Negative impression	10	10
Not applicable (no contact)	<u>53</u>	<u>55</u>
Total	97	100

TABLE 16: Compliments of Coast Guard's Performance in NEPCO Oil Spill Cleanup by 605 Riparian Property Owners

Compliments	Frequency	Percent
Good management	69	11
Speedy response	22	4
Good attitude	57	9
Good results	17	3
More than one of above	19	3
Other compliment	35	6
Nothing to compliment	28	5
No answer	<u>358</u>	<u>59</u>
Total	605	100

thoroughness of cleanup received much less praise. Criticism of the Coast Guard was most often directed against the organization of cleanup and containment of the oil (Table 17): people expressed concern that the Coast Guard did not have adequate control of the cleanup contractors, of the moving oil, of funds to finish the work, and so on.

We attempted in our personal interviews with residents to draw out their reasons for their evaluation of Coast Guard performance. The Coast Guard's performance in the NEPCO incident was viewed through eyes that also knew the Coast Guard during non-emergency times. The feeling that the local Coast Guard stations are undermanned, underequipped, and lack

the intimate familiarity with the complex river required for search and rescue or pollution response, influenced most negative judgements. Residents note that the turnover in the Coast Guard staff on the river is high and so its personnel are relative strangers to the river and to the residents. On the other hand, some Alexandria Bay villagers, especially persons in positions of public responsibility, consider the local Coast Guard to be "top notch," because the staff has made efforts recently to work closely with the village to serve their mutual interests. They complain that this rapport was useless because relative strangers were in charge. "If the local Coast Guard had been left alone to handle this spill everything would have gone fine. But there were too many outsiders, who were too remote from the situation and whose orders messed things up," said one villager.

TABLE 17: Criticisms of Coast Guard's Performance in NEPCO Oil Spill Cleanup by 605 Riparian Property Owners.

Criticism	Frequency	Percent
Response too slow	10	2
Poor preventive measures	10	2
Poor organization	55	9
Poor results	11	2
More than one of above	16	3
Other criticism	37	6
Nothing to criticize	51	8
No answer	<u>415</u>	<u>68</u>
Total	605	100

The vast majority of people who dealt personally with upper echelon Coast Guard officers in public information meetings, visits to Wellesley Island headquarters, chatting in a restaurant, or on their river property, were impressed. "A heck of a nice guy," people would say. "They did a fine job all through this thing," or "The Coast Guard did an excellent job, they knew what they were doing, they worked fast, and they were excellent in handling the public," were some of the comments by residents in the Alexandria Bay area. "They were polite, cooperative, and fast acting," and "Unlike the regular military, they are much more expert in dealing with the public," others said. Even among those disappointed in many aspects of the cleanup, respect for Coast Guard leadership is high.

Opinions of the lower level Coast Guard personnel who served as monitors are more negative. Complaints about these monitors, who because of their task of supervising cleanup crews were most visible to the public, were that they could not navigate a river they did not know, and that they gave evidence they didn't know much about boats and oil spill cleanup. Local people tell stories and show photos of boats damaged because Coast Guard monitors didn't know the river. Several residents were outraged to see monitors navigating by conventional road maps instead of navigation charts. Ultimately, property owners seemed to resent the entire operation being under the control during the emergency of an "outsider" group who did not know "their" river: the sense of propriety is strong and familiarity with the river is a necessary prerequisite to a good image. By these criteria, the lower level Coast Guard personnel acquired very little status, so very little confidence was placed in them by residents. "The Coast Guard was less qualified to lead the operation than the cleanup companies, which were local outfits or staffed by many locals, because the Coast Guard are temporary, uninterested, and inexperienced," said one marina operator. It did not help matters that most property owners, averaging 51 years old or older, usually confronted Coast Guardsmen 20 years younger than themselves and placed them, as they did the crews, in the category of "youngster."

A portion of this criticism of monitors is due to the widely differing perceptions among the monitors, cleanup crews, and residents, of the role of monitor. Visible on the river and the docks, the monitors were targets for citizen complaints, requests, and questions. Having received their daily instructions from headquarters and ordered to refer residents with problems to their superiors, the monitors sometimes seemed disinterested and uninformed. Residents expected monitors to be spokesmen for the Coast Guard, in other words, and were disappointed.

Monitors' role in relation to the crews was ambiguous also. Monitors inevitably knew less about the river and the cleanup operation than some of the crew or the foremen, yet were placed in a position of evaluating performance and relaying orders from headquarters. Crews resented the monitors for refraining from getting into the oil or working as their foremen did, but in this the monitors were simply following strict orders. "They just rode around in boats keeping clean," one worker said. Crews expected monitors to be experts and decision makers, in other words, and were disappointed.

As bearers of bad news, the monitors were the obvious targets for feelings of frustration and anger. In the early weeks after the spill when feelings were high and complaints shrill, and in August, when costs had to be trimmed, residents and workers alike perceived that crews were juggled from one spot to another, partially finishing one job before monitors arrived instructing them that they were urgently needed elsewhere, only to get partially done with that before moving again. Faced with cleaning an enormous area with limited money, the Coast Guard was required to make a judgement as to "how clean was clean," as residents and monitors expressed it to us. Property owners, and often the crews, were interested in a return to pre-spill conditions, but "The squeaky wheel was getting the grease," as many residents expressed it to us. One resident who worked most of the summer as a subcontractor said, "It was clear money was running out and those who complained loudest got action. Every time

we saw the monitors it meant we'd have to move. The teams suffered from low morale due to all this shuffling." We perceive in this frequent complaint about the "squeaky wheel" that residents felt other residents were subverting orderly work by wielding influence and that the Coast Guard was giving in to this pressure. Most residents we interviewed were unaware that any systematic approach was being maintained. We address this problem in our recommendations.

In an emergency like an oil spill, the local need for information is prodigious. The flow of information has been discussed in detail earlier. The Coast Guard came under criticism from residents we interviewed for not supplying the level of information desired. The mayor of Alexandria Bay visited the Coast Guard headquarters on Wellesley Island every day acting as liaison for his village, and most Alexandria Bay villagers have no complaints. People from other areas, because they asked questions the Coast Guard could not answer, or because they lived further away, were not satisfied. The Coast Guard was being asked questions such as, "Why are the shipping rules like this, that ships can spill oil on our shores?" The Coast Guard was blamed for allowing the barge to move on a foggy night, when in fact the Coast Guard does not regulate traffic, or for allowing the barge to move upriver after it had ruptured a tank, when in fact the Coast Guard did not make that decision, or for laws that are "too lax," when in fact the Coast Guard only enforces Congressional laws. Usually, specific and detailed information helped to calm people, increasing their satisfaction that the Coast Guard was competent in the tasks it was mandated to accomplish and concerned about cleaning the river. Public meetings with the Coast Guard relayed this information well and increased the accuracy of resident expectations of the Coast Guard, we learn from our interviews. But not everyone could attend the two Alexandria Bay open meetings on June 25 and July 2. A public meeting was not held in Chippewa Bay area until mid-July, when a number of misunderstandings were addressed in detail. "Fine--why didn't you relieve our concern earlier?" is the way one resident reported the general feeling at that meeting. Citizens definitely wanted to be told more than they read in the news; news coverage diminished with time, but summer residents were arriving throughout the summer with very little idea of what was going on. Conditions changed significantly from week to week, and what official word did not clarify, rumor tended to muddy.

Additional perspective on the problems the residents were having in dealing with Coast Guard personnel and evaluating the Coast Guard role comes from our interviews with 17 Coast Guard regulars and reservists who served during the spill response, and our correspondence with 11 more.

Monitors report that the majority of residents they met were reasonably patient and cooperative and seemed satisfied when the monitors answered their questions. But nearly every monitor mentioned, "I had to keep reminding them that we didn't spill the oil." From our interviews with residents, we observe that they do hold the Coast Guard at fault, usually for not preventing the spiller from spilling or for not preventing the oil from moving downriver. These criticisms, as we mentioned above, are based on a misunderstanding of the Coast Guard's actual function on the river and on excessive expectations for controlling spilt oil on the river.

The monitors felt they performed their duties either as a neutral third party or "on the side of the victims." From what monitors say about their treatment by residents, however, many residents did not recognize third party positions, and some saw the Coast Guard as, at base, covering up for the spiller, doing the cleanup task the spiller should be responsible for, and emphasizing "Everything will be all right, don't get excited," instead of "There'll be hell to pay for this." News coverage of Coast Guard action against the spiller was not extensive, so the punitive role of the Coast Guard was not emphasized. An oil spill is an accident with political implications, which many citizens were quick to recognize; the Coast Guard, however, could not assume a political stance and hence was perceived by some as nonsupportive or on the wrong side. "When people are hit with black gooey oil all over their beaches, there is no way you can maintain a good image; you are already in trouble. You show up in a nice crisp blue uniform and they hate you," observed one monitor.

In most natural disasters, the Red Cross plays a role very similar to that of the Coast Guard in an oil spill, and the similarity in its reception by the victim/public is striking. ". . .the interesting and pertinent question arises as to why many persons look with suspicion and hostility at this institution," writes Harry Estill Moore of the Red Cross.¹ He concludes, tentatively, that perhaps the Red Cross has oversold itself as a disaster relief agency and raised public expectations too high, as well as not adequately advertised its other services. The "spit and polish" appearance of the workers "with their semimilitary uniforms of expensive materials, carefully pressed and worn with an air"² incurs resentment. The organizational structure of the Red Cross is national and openly paramilitary, the agency having "taken on something of the attitude of authority which is acceptable coming from the armed forces but resented when displayed by a civilian institution."³ Local workers feel they know the situation and people better than outsiders, than strangers. An antagonism is set up between the professional and the amateur, the former appearing as a heartless bureaucrat by trying to avoid favoritism, and the latter (the term "amateur" originating as the "one who loves," as in "We're the ones who love this river") trying to avoid outsider interference.

The biggest single problem for Red Cross public relations, Moore argues, is their role in the long term rehabilitation of the stricken community. In this role they must probe into people's lives, assess damages, and budget limited funds to meet demonstrated needs. Not an insurance agency, the Red Cross limits its expenditures by following a basic American ideological line of insisting that everyone help himself to his ability before requesting aid. Victims, on the other hand, having done nothing to incur the misfortune and wanting to get back at anyone who impedes return to full pre-disaster status, however unfeasible that could be, scapegoat the Red Cross.

¹Harry E. Moore, Tornados Over Texas (Austin: University of Texas Press, 1958), p. 176.

²Ibid., p. 177.

³Ibid., p. 178.

Allen Barton¹ corroborates Moore's reasoning. Compared to the Salvation Army, which victims rate highly, the Red Cross is far less expressive in its humanitarian symbols. For example, it does not set up aid tents close to the work scene like the Salvation Army. Also, the Salvation Army doesn't do long term rehabilitation like the Red Cross. Because of the behavior of Salvation Army people toward each other and toward the victims, it is far more able to convey an image of uninhibited generosity than the Red Cross.

Like the Red Cross, the Coast Guard's primary public image is as a life-saver. "All that people know about us compared to our many tasks is that we do search and rescue," said one monitor. "We have the smallest budget, the fewest men, and the least equipment of all the services, but the most laws to enforce besides the few tasks the public knows about." The military language and bearing, the uniform, and the stranger status the Coast Guard also shares with the Red Cross. And like the Red Cross, the Coast Guard has the thankless task of disbursing funds for rehabilitation after the emergency actions are over.

Unlike natural disasters, where human lives are threatened, oil spills have no counterpart to the Salvation Army, no organization serving the humanitarian function of consoling victims for their loss. No lives were lost, of course, but as noted early in this report, residents' attachment to the river, its wildlife, and their recreational property is very strong, and their sense of loss--of money, beauty, recreation, wildlife, or a healthy river--was great. Where certain Coast Guardsmen through individual ability were able to convey personally a sense of understanding and to provide answers to the barrage of questions, the Salvation Army function was partly served. But there was not enough manpower or time available to the Coast Guard to serve this function: it should be shared or delegated to another party. We address this problem in our recommendations.

¹Barton, Communities in Disaster, p. 285.

CHAPTER EIGHT

REACTIONS TO CLEANUP

In this chapter we shall examine how the riparian property owners and the regular visitors and tourists evaluated the cleanup operation and what factors influenced that evaluation. To do this we will analyse how people perceived and treated the cleanup contractors and their crews, and combine their views with remarks by the 26 crew members, foremen, supervisors, and subcontractors whom we also interviewed. We shall look first at the nature of the pollution contracting industry, and then at the nature of the cleanup work. Second, evaluation by residents and crews themselves of the cleanup of the NEPCO spill will uncover the sources of praise and blame and some deepseated problems in the relationships between the concerned parties in a pollution crisis of this magnitude.

The primary contractors responsible for the spill cleanup were Sealand Restoration, from Clayton, New York and New Haven, Connecticut; Coastal Services, from Boston; New England Pollution Control, from New Haven; Marine Pollution Control, from Detroit; and the St. Lawrence Seaway Development Corporation, from Massena. There were a number of subcontracting companies, such as Industrial Marine Services, from Norfolk, Virginia; Ace Tool of Toledo; Ohio Hygienics, from Cleveland; and Fourth Coast Pollution Control, created during the summer in Waddington, New York. Most of these subcontractors owned expensive, specialized equipment such as radio communication trucks or "vactor" pumps, and were released relatively early in the summer because of expenses. Dozens, if not hundreds of individuals along the river with boats, motors, and equipment were also subcontractors on a smaller scale. In addition, supply services like marina space, fuel, and food for the workers were contracted for.

The major contracting companies varied in the amount of sophisticated cleanup equipment they possessed, but they all shared the outstanding characteristic of being primarily entrepreneurs, responsible for bringing together skills, laborers, communications equipment, and machines to do the cleanup. The entire field of pollution control has had the kind of booming and somewhat risky, unpredictable development that computers or rock music spectacles had in their early years. Venturous people who put their money on the right sophisticated equipment at the right time may realize impressive profits if chances arise for its lease.

The cleanup companies maintain very small permanent staffs and pick up their labor for each job. Sealand Restoration, for example, had several hundred on their payroll in July, 1976, and by December, 1976, had a staff of fifteen. Like the large army of inexperienced volunteers who work in tornados, floods, and earthquakes, the hundreds of cleanup workers converged on the scene literally within hours of the accident. "Coastal Services was hiring by Thursday night [June 24]," said one

Alexandria Bay resident, "and the parking lot in front of here was filled with cars with out-of-state plates. I looked at their hiring list that night, and they had hired about one hundred people, half of whom were local." People with past experience in oil cleanup arrived from the cities where the cleanup companies were based. Others came from as far away as Montana. Some Seaway residents had worked on the two previous Seaway spills. Others had done jobs for Sealand Restoration, of Clayton, in upstate New York locations. The estimates by workers of the percentage of their crews who were experienced never ran higher than 25%, however. Some crews contained no experienced workers, including the foreman. Most workers were young, between 18 and 30 years, with the average about 24. "The kids," as many onlookers called the crews, were drawn away from low-paying summer jobs, construction work, other oil spills, and summer vacation from college, to work on the St. Lawrence River. Some just guessed there might be work and drove up; others were called by friends in the spill area. Some used their connections in organizations and companies along the river to get on crews. Others stood in pre-dawn lines at the docks like extras from the film "The Waterfront." "For weeks after the spill there were 50 to 75 young people here [at the company's local headquarters] looking for jobs, and many were hired," reported a resident. "There were many college girls and islanders. The out-of-state employees who came in with the company numbered less than 100 and held the higher positions," he added. The NEPCO spill was the first spill, according to most informants, where women were employed extensively. Usually a few women were added to a predominantly male crew, but there were even a few all-women crews. Crew member estimates of the percentage of local residents ("people who know the river") on crews range from 30% to 90%, which probably reflects an actual variation between crews.

"Hiring people is hard. You have to hang out a shingle and take whoever comes along. We attempt to, but can't always, rehire the good people we used before," said one man close to the cleanup supervision. Good people are hard to keep because of the erratic nature of the work. Few people we talked to intended to make a permanent career out of "following oil spills." "Muckers are like cowboys," said one experienced crew member, "they travel a lot, live out of a suitcase, they're on and off the payroll." He didn't think it was romantic at all. "Oil money draws certain personalities, like the gold rush. People smell money and come in like sharks," said one crewman who had experience on drilling platforms in the Gulf of Mexico. "The out-of-town guys seemed different," as one yearround resident who worked as a subcontractor characterized the regular oil spill workers: "urban types, long-haired and pot-smoking." The impression conveyed to us was that a heterogeneous crowd of people descended on the river in the summer of 1976, and from their ranks the contractors molded as best they could a large, impromptu force. Later we shall discuss the reactions of the residents to this unusual labor force.

One results of the NEPCO spill has been that many river residents now have established experience and business connections with the companies that hired them to clean the river. In other spill cleanup work since the NEPCO accident, some residents have been re-hired. Were the cleanup companies to return to this area for work, they have many familiar people to reactivate as foremen, crewmen, subcontractors, and suppliers.

Sealand Restoration, for example, has grown enormously in oil spill work since 1974, and Coastal Services has established a branch office in Albany, to be closer to potential contracts in upstate New York.

To fully understand the evaluations of oil cleanup results, we must first understand the oil cleanup operation.

"Cleaning an oil spill is barbaric," said one resident who has worked on several. "You do it mostly by hand, 'mucking,' tossing rocks." "You work like cavemen," said an experienced foreman. "This is exhausting, dirty work, and there is no easy way to get it out," pointed out another foreman. "We were working trial and error." Most workers agreed that they had to improvise most of the time. "There is nothing much to teach about mucking," said one experienced worker. One learns by being with experienced people. Nevertheless, the work was exhausting. "The long hours turned people into zombies. I saw them each day at the end of work and they really looked wiped out. Just drink a beer to kill the pain and fall into bed," said one subcontractor.

Number six crude oil had the consistency of peanut butter in the river water. Muckers were mostly responsible for removing from the beach and water all the debris that the oil adhered to. Machines collected most of the free-floating oil. Rocks, grass, leaves and shoreline debris, cattails, dead animals, and sand were collected by hand, pitchfork, machete, and other simple methods, and stuffed into barrels or plastic bags, or pitched into small punts that were treated like floating garbage barrels. The work had all the earmarks of a garbage collection job except that actual garbage collectors have the advantage that trash is prepackaged and more easily carried away. They also don't always have to get wet. "The hard part about mucking is exposure to the elements all day, if the weather is bad," said one foreman. Good cleanup in other seasons would have been far harder.

Cleaning the NEPCO spill did make use of sophisticated equipment for chores such as vacuuming free-floating oil and scouring rocks and boat-houses of oil stains. Still, mucking was the core of the cleanup job for much of the summer. Most crews were composed of manual laborers. Machine crews, such as water laser crews, for scouring stains, also had muckers--two machine operators and four hand workers were the usual crew.

Crew size varied from four to fifty. Each crew was headed by a foreman, who usually worked along with the laborers. New England Pollution Control created "straw bosses," individuals promoted from within the crew, and working at crew member wages, to transmit orders.

The energy and long hours spent by crews in the first ten days, working right through rainy weekends and a July 4 holiday, are amazing. Many kids showed up "to save the river," and the dirty, hard work forged a sense of unity and high spirits among the workers, some of whom invested in T-shirts bearing the slogan "Slick of '76." The presence of women helped. All the crews wanted women workers, most of whom apparently proved something of an inspiration.

"Nobody really knew what the oil was like except those of us down there in it," workers told us. For a while, the crews developed what is called "disaster euphoria," high spirits resulting from the sense of purposefulness, of urgency, and of teamwork, that develop among workers after a disaster strikes.

Many factors combined to break down these initial high spirits, to the detriment of the quality of work. The job was filled with frustrations. Removing the oil created some of the problems. "They never decided what clean was--how clean was clean?" workers told us. Mucking around docks and boathouses was hard, because sometimes crews had to do jobs "the hard way" in order to avoid replacing personal property, even though they felt the cost of the labor exceeded the value of the property. Relations with Coast Guard monitors were sometimes strained, as we have pointed out in Chapter Seven. It was difficult to prevent recontamination of cleaned areas because the presence of the crews sometimes spread the oil stains over a wider area and further onto shore. Transport of the debris from the site to shore was sometimes over a long distance and work was slowed while waiting for returning boats. The oil smelled bad and dead fish or animals in it added to the odor. Standards for cleanup appeared to change as funds grew low, and crews felt they were shuffled from one job to the next with little regard for thoroughness of the work. The leadership offered by the foremen was a key element also; we will examine this below.

"Crews work hard at first. When progress slows, you lose your incentive." A descending spiral developed between the desire to see some progress, "to get the oil out," which slowly was extinguished by the sheer volume of the work, and the cynicism of "We're in it for the money," which increased as pressure in the crews grew to slow work down. Some crews and foremen began to tell each other, "Don't work yourself out of a job." Because no one was sure of the standards their work was supposed to meet, there was the additional cynicism of "This is good enough for government work." "I spent most of my time boosting morale," said one conscientious foreman. One worker reported, "Early in the work, our crew was so good we were told to slow down." After one learned the "game," one member told us, one could spend most of the day doing nothing, pretending to work. Crews were of course exhorted to look busy when Coast Guard monitors approached, but foremen ("for crews they like") would make the work easy, or, in some cases, were intimidated by their crewmen into slowing down. Monitors attempted to stalk crews in order to catch them napping (literally or figuratively). Working crews resented such tactics: "If the monitor showed up during your rest break, he'd think you were goofing off."

In the midst of these negative comments, it should be mentioned that in spite of deteriorating morale and efficiency among many crews, the cleanup effort had a very low injury rate. Inexperienced people working around machines and a very large river produced surprisingly few accidents. The toll of the cleanup operation was prodigious, as we shall see, but people were spared even if equipment wasn't.

What do those who worked on the spill think of the results of their work? "River cleanup standards are higher than saltwater spills," said one experienced worker, implying that companies familiar with ocean work could not easily meet the more stringent river standards. Each cleanup company and its workers suspects that the other companies are "shabby outfits," "a rip-off," and so forth. Many workers who talked with us have seen or were told that there is still a good deal of oil in the river. They were sometimes told to skip over oiled areas or were required to leave an oiled area before they finished cleaning it. Because the standard

of cleaning was judgemental and varied over time, crewmen vary in their opinions about whether they actually finished some areas they worked in. They usually agree that the areas cleaned by the other companies are not clean. River residents who worked on the spill complained that outsiders could not work well because they didn't "care about the river." Workers also admit that they made as much mess in some places as they removed. Nevertheless, acknowledging the difficulty of their work, most workers we spoke to are proud of how hard they worked and how good a job they were able to do in many places.

Before examining the residents' evaluation of cleanup and the pollution contractors, some background remarks about contamination and the progress of the crews along the river are in order. The following picture is derived from the questionnaires and personal interviews with riparian property owners. Thirty-five percent of the residents between Alexandria Bay and Massena claim that they were badly impacted by the oil, 43% claim they were lightly impacted, and 22% say the oil did not strike their property. At least 20% of the residents in all sections of the spill area claim heavy impact, but the largest proportions are in the Alexandria Bay (39%) and Chippewa Bay (53%) areas. Overall, 78% of the residents said they got at least some oil, and 67% of these residents say that cleanup crews worked on their property. Roughly the same proportion of respondents from each section of the spill area report that crews worked on their property.

As for the timing of cleanup, over half of the property owners say that crews arrived to work on their property before the July 4 weekend. Another quarter first saw crews sometime in July, and the remaining 21% had no crews until August or later. Our interviews reveal what is general knowledge along the river, that the upriver areas were worked on first in the early days, and that cleanup generally moved downriver. For example, whereas 67% of the property owners in the Alexandria Bay area had crews by July 4, 47% in the Chippewa Bay area had them, and 30% downriver from Chippewa Bay had them.

What did residents, regular visitors, and tourists think of the cleanup results and the cleanup companies' participation, based on what they had seen or heard? We shall look first at the opinions of the riparian property owners. About 65% rated cleanup on their property as adequate or better (Table 18). Opinions vary by area of the river, with Alexandria Bay area being most pleased and Chippewa Bay being least pleased. Ratings by property owners of the crews' overall performance is highly correlated with how well their own property was cleaned (Table 19). How badly one's property was impacted by oil appears also to have influenced one's opinions of the crews (Table 20). The most negative were the most heavily impacted, whose property was the hardest to clean and may still show evidence of oil. Ratings of the pollution contractors in general were also elicited from residents, and the results are very similar to those for the crews.

People's impressions of crews and the contracting companies are related to their main sources of information about cleanup events. Those who relied on personal observation without much contact with crews or the Coast Guard were the most negative, about 25% giving poor to very poor ratings, whereas those acquiring much information from crews or the Coast Guard are the most positive. Those relying on news sources or hearsay

generally refused to judge the crews or companies. Opinions of how well cleaned were areas other than one's own property show a similar relationship to information sources.

TABLE 18: Rating Given to Cleanup Results on One's Property after NEPCO Oil Spill by 605 Riparian Property Owners, by Location of Residence.

Rating of Cleanup Results	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Good	34 25%	5 9%	27 29%	66 21%
Adequate	60 45%	21 36%	58 62%	139 44%
Poor	40 30%	32 55%	41 44%	113 35%
Total	134 100%	53 100%	93 100%	318 100%

Chi square significance = $p < .004$

Contingency coefficient = .30

Number of missing cases = 287

TABLE 19: Rating Given to Cleanup Crews' Performance in NEPCO Oil Spill Cleanup by 605 Riparian Property Owners, by Rating Given to Cleanup Results on One's Property.

Rating of Cleanup Results	Rating of Cleanup Crews				Total
	Good to Very Good	Adequate	Poor to Very Poor	No Answer	
Good	53 50%	8 8%	0 0%	6 15%	67 20%
Adequate	49 46%	64 65%	14 17%	18 45%	145 44%
Poor	5 4%	27 27%	68 83%	16 40%	116 36%
Total	107 100%	99 100%	82 100%	40 100%	328 100%

Chi square significance = $p < .01$

Contingency coefficient = .59

Number of missing cases = 277

TABLE 20: Rating Given to Cleanup Crews' Performance in NEPCO Oil Spill Cleanup by 605 Riparian Property Owners, by Impact of Oil on One's Property.

Impact of Oil on One's Property	Rating of Cleanup Crews				Total
	Good to Very Good	Adequate	Poor to Very Poor	No Answer	
Not affected	37 22%	19 12%	2 2%	80 49%	138 35%
Light impact	75 44%	79 52%	44 37%	58 36%	256 42%
Heavy impact	59 34%	54 36%	72 61%	24 15%	209 23%
Total	171 100%	152 100%	113 100%	162 100%	603 100%

Chi square significance = $p < .01$

Contingency coefficient = .42

Number of missing cases = 2

In our personal interviews with riparian property owners, we asked how they rated cleanup on their own property, in the area in general, and how they rated the performance of the pollution contractors. Over half gave positive ratings to cleanup on their property, and again the most heavily impacted tended to be the most negative, but the correlation is not significant. There appears to be no significant relationship between when a person's property was cleaned and how they evaluate the crews. Just as in the questionnaires, on the other hand, there is a good deal of variation among different sections of the river, Alexandria Bay area being the most positive about the pollution contractors (Table 21). We were surprised to learn that yearround residents tended to be more negative about the crews than were the summer people, whom we suspected would be less known to the workers and less tolerant of the accident to begin with (Table 22). Perhaps a partial explanation of this result is that, as one person put it, some local people were making good money on the oil while others were hurt financially. About fifteen of the yearround residents we interviewed had businesses on or near the river, and as a group they were rather critical of crews.

Our other questionnaire, sent to people living in more distant towns in the St. Lawrence River valley, to regular visitors, and to tourists, asked for an evaluation of the performance of the crews based on what one had heard or seen. We were curious to see if hearsay and greater reliance on news sources, which this group would have had compared to river residents, produced opinions much different from those of river residents. Table 23 shows that the less association the respondents had with the river, the more positive, in general, they were about the performance of

the crews. Those who used camps on the river, though just as positive about crews as the property owners in our other samples, were nevertheless more negative than regular visitors without camps (and therefore without contaminated property) and also more negative than those who rarely visited the river.

TABLE 21: Rating Given to Cleanup Crews in NEPCO Oil Spill Cleanup by 97 Riparian Residents, by Location of Residence.

Location of Residence	Positive Judgement	Mixed Opinion	Negative Judgement	Total
Alexandria Bay	12 76%	8 31%	7 29%	27 41%
Chippewa Bay	2 12%	8 31%	10 42%	20 30%
Downriver to Massena	2 12%	10 38%	7 29%	19 29%
Total	16 100%	26 100%	24 100%	66 100%

Chi square significance = $p < .03$
 Contingency coefficient = .38
 Number of missing cases = 31

TABLE 22: Rating Given to Cleanup Crews in NEPCO Oil Spill Cleanup by 97 Riparian Residents, by Seasonal Residence Pattern.

Rating Given to Cleanup Crews	Summer Residence	Yearround Residence	Total
Positive judgement	13 35%	3 10%	16 24%
Mixed judgement	13 35%	13 45%	26 39%
Negative judgement	11 30%	13 45%	24 37%
Total	37 100%	29 100%	66 100%

Chi square significance = $p < .07$
 Contingency coefficient = .28
 Number of missing cases = 31

TABLE 23: Rating Given to Cleanup Crews in NEPCO Oil Spill Cleanup by 501 Fringe Area Residents and Tourists, by Type of River Use.

Rating Given to Cleanup Crews	Own or Rent a Camp	Regular Visitor, No Camp	Rarely Visit	Total
Good to very good	82 41%	151 60%	21 40%	254 51%
Adequate	45 23%	44 18%	8 15%	97 19%
Poor to very poor	55 28%	12 5%	3 5%	70 14%
No answer	16 8%	43 17%	21 40%	80 16%
Total	198 100%	250 100%	53 100%	501 100%

Chi square significance = $p < .001$

Contingency coefficient = .38

To review this statistical section, the public's opinions of the crews' performance and the quality of cleanup efforts varies by 1) section of the river, 2) degree of contamination from oil, 3) sources of information about the cleanup, and 4) degree of involvement on the river; that is, whether one is a property owner, a businessman, a yearround resident, a regular visitor without property, or has little to do with the river.

A qualitative picture of what kinds of blame and praise people offered of the cleanup is a necessary supplement to this statistical view.

The satisfaction of many in Alexandria Bay, of particular camp owners or islanders whose property was well cleaned, and the absence of strong feelings by people in areas not heavily contaminated by the oil, represent the majority of the river population and have produced our statistical results. Alexandria Bay Village, thoroughly contaminated, was cleaned well, even rebuilt in places, before the July 4 weekend, ten days after the spill. "By the Fourth, the crowds downtown were like rush hour on the New York subway. I never saw such a huge bunch. Everything was going fine then," one village resident recalls. Tourists told village businessmen that they could see no traces of oil. Waddington, 40 miles downriver, had its rocky village shoreline entirely recovered in boulders before their annual town regatta in July. "The beaches were actually cleaner than before because the trash was removed along with the oil," said one man. Camp owners echoed this view: "They cleared away a lot of debris that I would have had to clear, so things are better now than they used to be. . . in many places the shore will look better after the spill and cleanup than it did before," said one camp owner who didn't hesitate to criticize other

features of the cleanup. The shoreline that our research group visited casually, from Alexandria Bay to Waddington, showed after Labor Day to the tourist's nonprofessional eye few effects of the oil save for a "bathtub ring" at the high water mark on certain vertical rock faces.

On the other hand, the most vocal critics of the quality of cleanup are also river residents. Residents, like the crews, make comparisons among the companies contracting for the cleanup. The percentage of concerned local citizens on their payroll, the sophistication of their equipment, their tact with residents, and the quality of their foremen vary tremendously in observers' eyes. Some companies were believed to be padding their prices or their employee lists more than others. Sealand Restoration, the local company, though it was less adequately equipped, was generally rated higher than the out-of-state companies, which local opinion holds cost too much per day and cleaned too little. One of Sealand's greatest assets was the familiarity of their foremen to local observers, because a river resident was almost without exception assumed to do a better job than a stranger.

Residents and other observers were noticeably divided as to whether they saw the crews as hard working, dedicated natives making the best of a dirty job, or as "the kids," inexperienced, scruffy, messy migrant workers from distant places, coming for the good pay and unconcerned about their inefficient, primitive methods. The impression conveyed depended a great deal on which crew was seen, when they were seen, and who saw them.

The public criticized certain crews for wasting time, drinking, and smoking marijuana on the job. Residents saw crews playing frisbee, sleeping on docks, or playing with their dogs. Thefts that occurred during the summer were blamed on the crews. Crews were alleged to "appropriate" equipment that would be useful in their work: lines, gas tanks, saws, and the like. Residents complained that crews tracked oil from the job over docks, beaches and boats. The machinery used to remove oil stains was sometimes blamed for weakening mortar, chewing up wooden surfaces, or removing galvanizing.

"The oil is still here," is the opinion of many people we interviewed, whether or not they are satisfied with the cleanup at their house, marina or village. Residents of Alexandria Bay Village will compliment the cleanup around the shore but acknowledge that there is oil in the nearby islands. "There were rip-offs as in any big government project, but overall the job was well done" summarizes the Alexandria Bay view. "If they had been working for me I would have fired them," summarizes the more hostile downriver view, where the consensus is that a great deal of oil remains. "Oil is still visible in Chippewa Bay and Kring Point. A lot of the oil sank, got into the beaches and will always be there," said one subcontractor. People resent the presence of the "bathtub ring" of oil along the high water mark on rocks and shoreline which the Coast Guard could not afford to scour. "Many people who were hit by the oil have not been cleaned," the subcontractor continued, "They'll still be finding oil in the future." Though Canada was contaminated extensively only at Brockville, residents in September, 1976 were noting that Brockville too still had a visible oil mess in the municipal dock area.

Logistical failures and inadequate equipment anger some observers. Several people pointed out to us that the "load-and-wait, load-and-wait"

rhythm of some crews was due to inadequate boats for collecting garbage, or the distance needed to transport garbage to a point of contact with trucks, or the failure of a local subcontractor to supply the equipment promised. "They certainly could have bought better than they did," said one local supplier. "They'd call me at 7 a.m. and want 20 boats immediately. They were making day to day decisions and not getting good prices or deliveries." The equipment that was available was sometimes not matched by expertise in its use, or at least, didn't measure up to observers' expectations of technological sophistication. One Alexandria Bay villager found it rather ludicrous to see two men operating a large vacuum truck, one man holding the hose in the water and the other poking debris and oil toward it with a stick.

The rapid consumption of materials angers many. One crewman said, "Money was spent so loosely. For example, \$20,000 was spent on rain gear alone in Chippewa Bay because there wasn't any way to clean it. Also, equipment was dispensed that just went home with people and never got used." Resident observers of cleanup crews angrily repeated similar criticisms. "A lot of money was spent on equipment which just disappeared," said one cleanup supervisor. "It's like the military in the way labor and materials are wasted."

Far more important than equipment in most observers' estimations in accounting for the quality of work, or the failures they witnessed, was the leadership and coordination of the cleanup. Most who complained spoke in terms of management, supervision, communication, or coordination. "Too many people, too much overtime," "there was no plan," "so much depends on the foreman," "improper supervision," "poor management was the chief problem," were comments we heard all the time. An islander experienced in management said, "An effective manager is worth his weight in gold. Unfortunately in this kind of business where there is a lot of down time between spills it is difficult to keep these people--they like to work and will be dissatisfied with jobs that leave them idle for periods."

Foremen had the unenviable task of boosting crew morale, answering to residents on whose property they worked, adjusting to Coast Guard monitor instructions, and maintaining radio contact with their company's central office. Native or outsider, foremen ran the full gamut of competence. As important as experience with oil or familiarity with the river was the ability to lead a pick-up crew. Some foremen acquired the job by default--few of the workers had experience so individuals with experience were placed at the head of crews to instruct the many novices.

In discussing the spill cleanup in general, the most common complaint besides the continuing presence of the oil or oil stains is that the job was a "rip-off," a "waste." We have already noted that many local people are convinced that workers were not efficient, that there was waste of materials and time. Many are also convinced that prices charged for everything, from hourly wages and machine rentals to sandwiches, were exorbitant. "The Coast Guard was far more liberal than the contractors expected. For example, once they ordered the contractors to buy 400 boats, just like that," said a close observer. "On this spill everyone knew there was a lot of money to be made," said an experienced mucker. Some people who were originally motivated to "get NEPCO," financially or otherwise, shifted their goals to recovering their losses due to the oil spill from the cleanup operation itself. "I know someone who bilked [a

contractor] of \$150 grand," one businessman reported confidentially. Many informants resent these expenses because they know that ultimately the bill is paid with tax revenues. Those who didn't stand to benefit from the cleanup expenditures therefore fall into the camp of those resenting having to pay for the cleanup. And so the two groups come to resent one another.

But those who subcontracted goods or services have not had a free hand with money. A contractor's records "are now being audited for the Coast Guard," a subcontractor told us in November, 1976. "They may not get all of the outstanding \$800,000 they claim is owed. Some local people who are owed by the contractors fear they won't get paid." Local marinas and hardware stores, for example, were still anxious that their expenses would not be covered. These worries, too, cannot but aggravate ill feeling of residents toward the cleanup companies, who ordered the materials, and the Coast Guard, who authorized the order.

In defense of the major contractors, some employees and subcontractors pointed out that "Contractors had their price list and they stuck to it," that their cost-plus approach was legitimized by their contracts, and that observers are not aware of the enormous overhead involved. "We did not rip people off," argued a foreman. "The market set the prices and the Coast Guard was in a hurry to get the job done so we couldn't shop as well as we wanted. The town decided what the rental fee for its dump would be, for example, not the contractor. Overhead is tremendous--insurance and repairs, for example--and we never get all we ask for after auditing." Another insider agrees that some local merchants charged high prices to the contractors. Opportunism in the presence of "government money" infected many people who got close to that money. A worker with experience on other spill cleanup operations claimed that prices for things were down on this spill compared to earlier spills on the river, such as the Sarnia spill of 1974, where insurance companies concerned about public relations spent large sums to reduce victims' resentment.

The root of much resentment about waste, poor management, and inefficiency of cleaning the river is a high and perhaps unreasonable expectation that oil cleanup should already be a highly mechanized, efficient, and--at least as far as the victims are concerned--free operation. "You have to realize," said one foreman, "that oil spill cleanup is still in a very primitive state, still evolving and necessarily behind the state of other industrial arts." Critics of the operation take the attitude, "If we can put a man on the moon, we can do this right," and are outraged that river cleanup appears to have all the faults of bureaucratic clumsiness, military waste, and union featherbedding. The foreman continued, "People up here don't understand how industry operates and they are setting impossible standards. Other big businesses are much the same, just less visible to the outsider." Residents compared the spill cleanup to their ideal of industrial efficiency, not the reality that sociologists and managers know. Even those who were aware intellectually that industry is rife with error, were never before so constantly affected by and in view of the "backstage" of an industrial operation. They didn't like what they saw.

"American culture and more generally modern industrial culture emphasizes rationality, activism, and the possibility of dominating natural

forces," wrote Allen Barton in Communities in Disaster.¹ Another writer quotes the British view that:

Americans are particularly angry or baffled if solutions to their problems are not fairly readily available upon the investment of time, energy, and money. The experiences of the last few decades, especially in technology and medicine, have inured us to miracles and make us impatient with problems to which no answer seems quickly possible.²

These descriptions apply to the Americans along the St. Lawrence Seaway. They have high expectations produced as a part of the culture's ideology that might not be met even were future cleanup operations to solve many of the problems plaguing the NEPCO events. The Coast Guard never before had an inland spill of such quantity and broad territory to oversee, nor had the contractors to work so constantly in the backyards and under the scrutiny of the victims.

Relationships between contractors and the Coast Guard, and between the contractors and the local people varied a great deal from case to case. The remainder of the chapter discusses these two relationships.

In the first days after the spill, negotiations for contracts at the command post on Wellesley Island were intense. The pressures revived each time budget pinches required laying off workers or whole companies. Some residents suspect that the particular pattern of hiring and especially firing as the summer wore on had more to do with backroom politicking than objective causes. It has been impossible to judge in this report whether such observer perceptions are accurate. It is reasonable to assume that companies worked hard to get and keep contracts with the Coast Guard. Most observers and workers we talked to could have little concrete information on this. But the important thing is that people's opinions have repercussions on their evaluation of the summer's events and others' work performance.

One observer who followed the cleanup events closely identifies a basic problem in pollution contractor-Coast Guard relations: a different value system. The Coast Guard, concerned with cost factors, had to instruct their monitors to enforce a limited cleanup policy as the summer wore on. The cleanup crews, on the other hand, argued that much more had to be done in order to prevent re-pollution and to really "get the oil out." They were quite content to have lots of work, but also were frustrated to be leaving oil behind. "The Coast Guard seemed to be handing out all the orders," said one mucker, "which docks to do, which ones not to do." "A twelve man cleanup crew was given 15 minutes to clean up a 13 acre island, and since they knew that was impossible, they stayed all day," said one islander. He continued, "The standards also shifted with

¹Barton, Communities in Disaster, p. 332.

²Robert Wilson, "Disaster and Mental Health," in George Baker and Dwight Chapman, eds., Man and Society in Disaster (New York: Basic Books, 1962), p. 131.

time. In Alexandria Bay the docks were cleaned underneath. The downriver areas later were not cleaned as well."

A last feature of pollution contractor-Coast Guard relations is the association of monitors with crews. Earlier we noted the crews' anger at the monitors, which developed partly because the monitors did not seem experienced, or they didn't know the river, and partly because of the difference in values mentioned above. Monitors, it will be recalled, were responsible for conveying orders that required crews at times to move about apparently randomly, leaving jobs unfinished, to answer complaints. A point of friction is the monitors' orders to stay clean. "A Coast Guard fellow helped us once, and got a bit dirty. He was reprimanded since they weren't supposed to do physical work," said a mucker. A man who worked a steam hose complained, "The Coast Guard monitors didn't want to get their uniforms dirty. If they came too close, we made sure they got dirty."

The more we heard from crews about their relationship to monitors, the more the situation resembled the classic line and staff conflict in industry.¹ The monitors, like the staff, have to overcome many social, functional, and perceptual differences from the work crew, or line, the process of which leads to some deterioration in the goals of the industry--in this case, cleaning as much oil for as little money as possible. There are indications that Sealand Restoration, and perhaps others, intend to organize in a more military fashion in order to better coordinate with the Coast Guard. "Some crew members don't take to this, and they're being fired," said one supervisor. Such a move may well improve relations with the Coast Guard and efficiency of cleanup.

The relationship between the cleanup companies and local residents varied tremendously. Sealand Restoration did not escape criticism, but it had the best public image, being a local concern with area residents as foremen. People admire the owner's ability to develop an antique boat repair company into a highly equipped pollution control operation employing many people. "He is a hard worker. He deserved to make money, which he did. He has worked his way up over the years, proving that even in Clayton one can start from scratch to build a successful company," said several people familiar with the company. The general yearround poverty of Jefferson and St. Lawrence Counties weighs on residents, so they like to see that Sealand is an economic success. Comments about other companies by residents are more negative. They are more often viewed as expensive, uncaring, and unfamiliar with the river. Damaging to Coastal Services' public relations, for example, was their appropriation of Chippewa Bay's town dock for several months, effectively closing off tourist boating there. The dock was dirtied, the boat ramp was scooped out for larger boats, thus rendering it useless for launching small craft, and to add to the felt injury, the Coast Guard did not pay the town for use of the dock. Residents noted pointedly that the Chippewa Bay Yacht Club, maintaining a private dock for islanders contiguous to the town dock, was paid \$75

¹Melville Dalton, "Conflict Between Staff and Line Managerial Officers," American Sociological Review, Vol. XV, No. 3, 1950, pp. 342-51.

a day rent and only their parking lot was regularly used. Since October, 1976, the town dock area has been completely restored. The surface of the dock was replaced, and the boat ramp was resurfaced. Still, the dock was out of commission all summer until the Coast Guard ordered it cleaned adequately for tourist activities on Labor Day.

The other cleanup companies did not produce such strong public images, either positive or negative. St. Lawrence Seaway Development Corporation is an exception, drawing its foremen from its own staff and from residents in the areas they cleaned, near Waddington and Massena, and is remembered favorably. Area residents who worked on the cleanup were also impressed by individuals with expertise or sophisticated machinery in Marina Pollution Control from Detroit. Marine operated a new boat-mounted vacuum pump and enlisted its engineers to work out the bugs while it was working. Ace Tool from Ohio was one of the first to bring in water lasers, very high powered pressure hoses for scouring docks and shorelines. Lasers impressed most people who saw them. Some, however, noticed that lasers removed galvanizing from metal and chewed up wood surfaces to look almost like velvet. It bears repeating here that the contrast between the sophisticated equipment and the drudge work of "mucking" is profound. Naive observers who base their expectations for cleanup on the image projected by the machines are bound to be disappointed, since the hand work generally establishes the pace of the cleanup.

Some residents wanted to clean their own property but were discouraged from this by Coast Guard and Department of Environmental Conservation regulations concerning methods. Residents say it was extremely frustrating to have oil on one's property and to have to wait passively (or perhaps complain constantly) until a crew came without notification and did a cleanup job one judged inadequate. They also acknowledged, however, that some residents who attempted to clean their boats or shores made quite a mess of things. "Sometimes people made things worse, for example, by cleaning their boat in the water in a clean area using gasoline," said an Alexandria Bay businessman. He said that "You can't decentralize operations so much as to make every victim a subcontractor." There is a need for local contingency planning along the St. Lawrence River, recognizing that the friction between residents' high level of concern and low level of participation results in much useless frustration and complaints. We address this need in our recommendations.

There were many instances of exchanges that helped the relations between cleanup crews and residents. Foremen gave absorbent pads to residents to protect their clean beaches or cover their docks against dirty feet. As mentioned earlier, Coastal Services for a time had a trailer of supplies in Morristown for residents to help themselves. Absorbent boom was also given out to camp owners to boom off small bays, docks, and marshes.

The residents' treatment of crews working on their property was sometimes not good, the crews being the first persons residents could express their anger and frustration to. Some residents were more diplomatic: one hose barge operator reported that a man whose property they cleaned had invited the foreman in to his camp for drinks and sent the crew on its way after the job with a six-pack for everyone. "We did good work for him," he laughed. Other residents offered snacks, a place to eat lunch, use of the telephone, and other small favors.

To conclude this chapter on the evaluation of the cleanup campaign, the majority of residents give adequate to very good ratings to the quality of work and to the workers' efforts, but there are also many complaints, from the satisfied and dissatisfied alike. Concern was expressed about the experience--hence efficiency--of the crews, their genuine commitment to "our" river, and their trustworthiness on personal property. There was also a great deal of dissatisfaction that the river could not be returned quickly and completely to a pre-spill condition. The expectations of industry and technology were disappointed by months of observing at close hand the "inside" of an operation dispersed over 60 linear miles of convoluted shoreline. Residents lived in a constant cloud of rumors that money would run out, work would stop, and the crews would not finish the job. This led to concern with inequities and the belief that the one who yelled got cleaned. Since tax money paid for the operation, residents feared a boondoggle at their expense rather than the spiller's, or else they sought to take advantage of the money themselves, both situations resulting in a low estimation of the government money managers.

As a final note, the conviction persists among too many residents that they had oil on their property because the initial spill response was not fast enough or well equipped enough to prevent the oil from moving down-river, or that malicious individuals broke the boom to let the oil down-river. Speed and equipment for initial response can and must be increased, of course. And booms were broken, intentionally or otherwise. But many people think that a modern technological nation should be able to deploy a boom across the river and simply stop the oil. The public has excessive hopes for the efficacy of boom, a problem that we shall also address in our recommendations.

CHAPTER NINE

CONSEQUENCES: DEVELOPMENT OF A DISASTER CULTURE

This chapter will cover four topics: the public's evaluation of the effects of the spill and cleanup; the public's evaluation of changes in their behavior as a result of the spill; the public's attitudes toward future spills and their predicted response; and our overview of the position of the area's inhabitants to respond to future major pollution events on the river--what we call their disaster culture.

First, the public's evaluation of the effects of the spill and cleanup on the river and themselves. We were interested to know how the public labeled such a pollution event, so our questionnaire asked riparian property owners whether the summer's events were a disaster and to justify their answers. Sixty-eight percent of those who replied to the question (or 61% of all those returning questionnaires) said that it was, but what made it a disaster to them varied a good deal. Table 24 shows a significant association between how one evaluated the event and where one lives along the river. The Alexandria Bay area tends more to think of the spill as a disaster to the tourist business; the downriver areas tend to emphasize the oil's effect on nature. Many people who categorized the spill as a disaster "for some other reason" emphasized the high cost, confusion, or mess. People whose property was heavily impacted by the oil are predictably much more likely to call the spill a disaster (Table 25). Those who relied most on personal observation of events rather than news sources or hearsay are most likely to call events a disaster. How well one's property was cleaned also has a significant effect on how one labels the events (Table 26).

Respondents to the questionnaire sent to the fringe areas, regular visitors, and tourists were also asked if the events were a disaster. About 63% thought it was a disaster of one sort or another (Table 27). The more intimate association a person had with the river, the more likely he was to call the events a disaster. Similarly, the more closely a person followed the events of the summer, through observation or news media, the more likely he was to call the events a disaster.

Eighty-three percent of the people we personally interviewed labeled the spill a disaster (Table 28), and although the reasons given varied by section of the river, all areas of the river judged events a disaster in about the same proportions. Our sample did not include enough people who were not hit by the oil to allow us to calculate whether oil impact influenced how they labeled the spill, but only 29% of those who called their property lightly contaminated claimed a disaster, while 79% of those who called themselves heavily contaminated did so. Twice as many yearround residents as summer residents thought the spill a disaster, but our sample was too small to give statistical significance to that result.

TABLE 24: Responses of 605 Riparian Property Owners to "Was the NEPCO Oil Spill a Disaster?", by Location of Residence.

Response	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Yes, to business	26 11%	7 8%	10 5%	43 8%
Yes, to nature	18 7%	7 8%	14 7%	39 7%
Yes, in response organization	14 6%	5 5%	8 4%	27 5%
More than one of above	29 12%	7 8%	19 10%	55 11%
Yes, other reason	33 14%	24 26%	33 17%	90 17%
Yes, reason not given	43 17%	22 24%	39 21%	104 20%
No	80 33%	19 21%	69 36%	168 32%
Total	243 100%	91 100%	192 100%	526 100%

Chi square significance = $p < .01$

Contingency coefficient = .25

Number of missing cases = 79

In all of our surveys, most people who did not label the events a disaster said the situation was a mess, or a "botch," but because the river wasn't destroyed, or lives weren't endangered as they would be in a flood or tornado, the word "disaster" was the wrong name. We conclude, however, that most people did call it a disaster, whether or not they felt there was permanent damage, because it seemed to seriously disrupt the area's economy and wildlife.

We have shown that between 6% and 25% of all categories of people we surveyed claimed the spill was a disaster to nature (the lower figure probably being more representative). In the personal interviews, residents were also asked how intensive they felt the spill damage to be to the river. Thirty-seven percent said they thought some of the damage wrought would be permanent--to birds, weeds, fish, water purity, or the appearance of the shoreline. Forty-five percent said there would be no permanent damage, and 18% didn't know. In other words, the majority feels the river will recover, but it is not an overwhelming majority.

TABLE 25: Responses of 605 Riparian Property Owners to "Was the NEPCO Oil Spill a Disaster?", by Impact of Oil on One's Property.

Response	Badly Impacted	Lightly Impacted	No Effect	Total
Yes, to business	9 4%	25 10%	8 3%	42 8%
Yes, to nature	16 8%	13 5%	11 10%	40 7%
Yes, in response organization	17 9%	9 4%	2 2%	28 5%
More than one of above	17 9%	32 14%	7 7%	56 10%
Yes, for other reason	57 28%	33 14%	5 4%	95 17%
Yes, reason not given	59 29%	37 16%	10 9%	106 20%
No	26 13%	87 37%	64 60%	177 33%
Total	201 100%	236 100%	107 100%	544 100%

Chi square significance = $p < .01$

Contingency coefficient = .41

Number of missing cases = 61

Residents are not hesitant to acknowledge that there were also good effects of the spill and cleanup. Those who called the events a disaster are as likely as the others to cite positive effects (Table 29). There is a significant association between what kind of a disaster a person thought the spill to be and what kind of good came of it: there are roughly two groups--the economically-minded, and the politically and environmentally-minded. Those claiming an economic disaster most often acknowledge the income to the area from the cleanup campaign. Those claiming a natural disaster most often acknowledge the increased awareness, organization, and political action that resulted. The amount of oil on one's property didn't influence a person's evaluation of the positive effects. Although we expected yearround residents to be the group most likely to acknowledge the positive effects, their tendency to do so is not significantly different from that of the summer residents, whom we expected to care less about the income produced by the cleanup campaign. In other words, these results suggest that people we interviewed were attempting to be objective about the summer's events, that they were not perceiving everything through the lens of their own self-interest.

TABLE 26: Responses of 605 Riparian Property Owners to "Was the NEPCO Oil Spill a Disaster?", by Rating Given Cleanup on One's Property.

Response	Excellent	Adequate	Poor	Total
Yes, to business	3 5%	15 11%	4 4%	22 7%
Yes, to nature	7 11%	8 6%	8 7%	23 7%
Yes, in response organization	3 5%	4 3%	15 13%	22 7%
More than one of above	3 5%	16 12%	9 8%	28 9%
Yes, for other reason	9 14%	23 17%	30 26%	62 20%
Yes, reason not given	10 16%	27 20%	33 29%	70 22%
No	28 44%	42 31%	15 13%	85 27%
Total	63 100%	135 100%	114 100%	312 100%

Chi square significance = $p < .001$

Contingency coefficient = .35

Number of missing cases = 293

The majority (58%) of the riparian property owners returning questionnaires neither gained nor lost financially from the spill. Another 37.5% say they sustained a loss, either because of a reduced volume of clients or because of damage to their docks, boats, retaining walls, etc. One percent say they gained from the summer's events. Of the 97 people we personally interviewed, 30 operated businesses of which 17 depended partially on a tourist clientele. Seventy-one percent of all these business owners say their business was down in 1976 compared to previous years; 23% said they did a normal amount of business, and 6% say they had a better than usual year. Not all businessmen who had a bad year in 1976 attribute it to the oil: many acknowledge that the weather was unusually poor, and find it impossible to separate one cause of their loss from the other.

TABLE 27: Responses of 501 Fringe Area Residents and Tourists to "Was the NEPCO Oil Spill a Disaster?", by Type of River Use.

Response	Own or Rent a Camp	Regular Visitor, No Camp	Rarely Visit	Total
Yes, to business	8 4%	10 4%	0 0%	18 4%
Yes, to nature	8 4%	15 6%	4 9%	27 6%
Yes, in response organization	16 8%	8 4%	1 2%	25 5%
More than one of above	21 11%	23 10%	2 5%	46 10%
Yes, for other reason	18 10%	11 5%	2 5%	31 7%
Yes, reason not given	65 34%	69 29%	13 30%	147 31%
No	55 29%	100 42%	21 49%	176 37%
Total	191 100%	236 100%	43 100%	470 100%

Chi square significance = $p < .04$

Contingency coefficient = .21

Number of missing cases = 31

Data supplied by four real estate businessmen dealing in riparian property allowed us to assess the impact of the spill on prices and volume of sales in 1976 and 1977. No evidence of much effect on the sales price of river property could be found. Agents were agreed that the volume of buyers was down. There were many cancelled appointments to see property and many telephone calls from concerned prospective buyers. Each agent could only point to one or two sales that they believe were prompted by the spill, confirming our results from interviews that the spill caused few residents to sell out. The agents believed, and we concur, that people who placed their marinas, stores, or cottages on the market after 1976 were responding to cumulative difficulties, not solely to the spill. Demand for riverfront property had rebounded very satisfactorily in 1977, and prices were stable, the agents reported.

TABLE 28: Responses of 97 Riparian Residents to "Was the NEPCO Oil Spill a Disaster?", by Location of Residence.

Response	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Yes, to business	8 24%	2 8%	5 21%	15 18%
Yes, to nature	8 24%	9 34%	4 17%	21 25%
Yes, in response organization	2 6%	2 8%	1 4%	5 6%
More than one of above	2 6%	1 4%	3 12%	6 7%
Yes, for other reason	8 24%	8 31%	6 25%	22 27%
No	5 16%	4 15%	5 21%	14 17%
Total	33 100%	26 100%	24 100%	83 100%

Chi square significance = not significant
Number of missing cases = 14

The business effects of the spill could be both bad or good, as we have mentioned above. Two examples may be noted. One liquor store's records show a \$14,000 loss in volume in 1976 compared to 1975. The presence of hundreds of spill workers did not compensate for the reduced numbers of tourists the weather and oil kept away. On the other hand, lumber companies in the area were doing a brisk business in 1977 repairing docks and selling marine paint to victims of the previous summer's spill.

We asked tourist businessmen how their customers reacted to the spill and subsequent weeks of cleanup. Sixty-three percent reported their customers were upset, 11% said customers seemed rather indifferent to events, and 26% said their customers were of all opinions. A number of businessmen reported to us that customers arriving several weeks after the spill either knew very little about what had happened or were impressed with how little evidence they could see of any major oil spill. This is one reason why tourist businessmen had expressed resentment at extensive publicity of the spill: many tourists would never observe the river closely enough for the spill to make any difference to them.

TABLE 29: Response of 97 Riparian Residents to "Did Any Good Come of the NEPCO Oil Spill?", by How They Labeled the Event.

Response to "Any Good Result?"	Business Disaster	Natural Disaster	Disaster- Other Kind	Not a Disaster	Total
Yes, economic benefits	6 50%	2 10%	6 23%	2 17%	16 23%
Yes, public aware- ness & action	3 25%	10 53%	6 23%	6 50%	25 36%
Yes, other benefit	0 0%	1 5%	5 19%	0 0%	6 9%
No	3 25%	6 32%	9 35%	4 33%	22 32%
Total	12 100%	19 100%	26 100%	12 100%	69 100%

Chi square significance = not significant

Number of missing cases = 28

Our final technique for surveying residents' evaluation of the spill and cleanup efforts was to ask "What bothered you most about the events of that summer?" and "What was the most admirable aspect of the summer's events?". Tables 30 and 31 present the results from questionnaires. The most frequently mentioned criticisms were aimed at the quality of the cleanup, the leaders in charge, the spiller, river regulations, the timing of the spill, and its high cost. Receiving the most praise, as well as the most blame, were the leaders and the quality of cleanup. There was not much agreement on what caused the most distress or deserved the most praise.

We turn now to the effects of the oil spill on the 1976 summer plans of river residents and visitors. In personal interviews, 59% of the river residents reported having to reduce their use of their docks, boats, and swimming areas during the summer for fear of further contamination (Table 32). The amount of oil an area received influenced river use, of course, but the association is not significant--people in all areas had to change their behavior because of the fear of contact with the occasional patch of oil or sunken pools of contaminants. Six percent of residents say that they came less often to the river. Over one-quarter of all residents say the oil had no effect on their summer plans. We note, however, that most of these are cottage owners who neither boat nor swim.

TABLE 30: Feature of NEPCO Oil Spill Events Characterized as Most Upsetting by 605 Riparian Property Owners.

Feature	Frequency	Percent
Spiller's behavior or river's traffic regulations	33	5.5
Timing of spill	32	5.3
Amount of money spent	32	5.3
Effect of oil on environment	6	1.0
Leaders of spill response	42	7.0
Disruption of summer's activities	11	1.8
Quality of cleanup	54	8.9
Political complexity	16	2.6
Several of above	49	8.1
Other feature	64	10.6
No answer	266	44.0
Total	<u>605</u>	<u>100.0</u>

TABLE 31: Feature of NEPCO Oil Spill Events Characterized as Most Admirable by 605 Riparian Property Owners.

Feature	Frequency	Percent
Quality of cleanup on shoreline	60	9.9
Speed of spill response	32	5.3
Leaders' attitude	72	11.9
Behavior of other residents	13	2.1
Beneficial side effects	6	1.0
Several of above	16	2.6
Other feature	63	10.4
Nothing was admirable	30	5.0
No answer	313	51.7
Total	<u>605</u>	<u>100.0</u>

TABLE 32: Effect of NEPCO Oil Spill on Summer, 1976 Activities of 97 Riparian Residents, by Location of Residence.

Effect on Activities	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Came less to river	1 2%	4 14%	1 4%	6 6%
Used facilities less	25 60%	19 65%	13 50%	57 59%
No change	12 29%	4 14%	10 38%	26 27%
No answer	4 9%	2 7%	2 8%	8 8%
Total	42 100%	29 100%	26 100%	97 100%

Chi square significance = not significant

Most fringe area residents, regular visitors, and tourists who responded to our questionnaire say the spill had no effect on their summer plans (Table 33). Almost 84% reported that they visited the river during the summer, the remainder saying they didn't plan on visiting anyway.

It appears, therefore, that the effect of the spill on summer plans was much more pronounced for property owners and yearround residents than for the more casual visitors. In neither group did the spill entirely discourage many people from coming to the river. On the other hand, 27% of the river visitors and 6% of property owners did alter their summer plans in ways that could be harmful to the river's tourist season. Only 1% of visitors report that the spill actually attracted them to the river.

The spill had effects on the mental and physical health of people and domestic pets residing near the river. Fifteen of the 97 residents we interviewed reported they had problems because of the oil. Seven volunteered information during interviews that suggests the summer's events disturbed them emotionally. Depression and nervous exhaustion were most frequently mentioned. These residents--some summer people, some yearround people--had to take special steps, such as leaving the river, to deal with their upset condition. Another eight said that for as much as two weeks after the spill, the smell--and perhaps the tension--produced nausea and headaches in them or members of their families.

We could find no data among pharmacists on increased sales of sedatives or tranquilizers to further support our interview evidence of psychological distress. Information on admissions and emergency room visits to the Noble Memorial Hospital in Alexandria Bay shows that the number of ailments treated was equal to or even slightly less than in 1975. The proportions of complaints were different, however. One specialist reported that contact dermatitis from handling oil, especially among the spill

workers, was common. There were also more complaints and more pronounced cases of gastroenteritis in 1976 than usual, which he attributes to physical and psychological effects of the spill. He, too, commented on the many complaints of dizziness and nausea in the early weeks after the accident. Finally, one resident in the Alexandria Bay area is reported by his neighbors to have broken his leg walking on a dock poorly reassembled after the crews cleaned it.

TABLE 33: Effect of NEPCO Oil Spill on Summer, 1976 River Activities of 501 Fringe Area Residents and Tourists, by Time of Visit.

Effect on Activities	Visited Before Spill	Visited June-July	Visited August or Later	Visited Several Times	Did not Visit	Total
Cancelled visit	2 5%	1 3%	0 0%	4 1%	4 5%	11 2%
Postponed visit	5 14%	4 9%	0 0%	87 27%	0 0%	96 19%
Multiple effects	0 0%	1 3%	1 9%	19 6%	8 10%	29 6%
No effect	29 81%	33 82%	14 93%	208 64%	69 85%	353 72%
Attracted me to river	0 0%	1 3%	0 0%	7 2%	0 0%	8 1%
Total	36 100%	40 100%	15 100%	325 100%	83 100%	499 100%

Chi square significance = $p < .001$

Contingency coefficient = .30

Number of missing cases = 2

Three residents we interviewed had pets which were made ill by contamination from the oil. Many residents had pets who became soiled by running free and who threatened boat, house, and clothes. Then if the animals tried to clean themselves, they were poisoned by swallowing the oil. In our interviews, too, we noticed that the experience of having seen oiled and dying wildlife was a very upsetting one for the residents who saw struggling wildlife or tried to clean animals.

We have been examining the effects of the spill on residents during the summer of 1976. What were the longer range effects on people's plans and river activities?

The oil spill had little long term effect on riparian property owners' plans for future years on the river (Table 34). Only 18% of respondents

intend to make any changes in their plans as a result of the summer of 1976, and some of those actually plan to come more often to the river, buy property on the river, or alter their business in some way to adapt to a river which is prone to spills. Over 12% of all property owners say they will be coming less to the river, selling out, or reducing their recreational use.

TABLE 34: Effect of NEPCO Oil Spill on Plans for Future River Activities for 605 Riparian Property Owners.

Effect on Future Plans	Frequency	Percent
Come less often to river	8	1.3
Come more often to river	3	0.5
Alter business	5	0.8
Sell riparian property	16	2.6
Buy riparian property	2	0.3
Reduce recreational use	50	8.3
No change	480	79.3
More than one of above	22	3.6
No answer	19	3.1
Total	605	100.0

The river residents and businessmen we interviewed were even less likely to change their future plans as a result of the spill. Eighty-nine predicted that they would go on as before. Six percent predicted they would diminish their recreational use or business along the river.

Fringe area residents, regular visitors, and tourists are unlikely to change their behavior, either. Eighty-six percent report the spill had no effect on their 1977 plans (Table 35). Those who viewed the spill as a disaster to nature or whom the spill inconvenienced in 1976 were the most likely to change their future plans. Overall, 13% of the visitors we queried cancelled, postponed, or altered their use of the river in 1977 as a result of the spill. This could produce a serious effect on tourist business, but there is no way to know if these changes will be permanent. We share with some tourist businessmen the expectation that, barring another spill, "People will forget."

Will there be more spills? We asked the residents in our interviews this questions and 81% were certain that there would be. "Maybe tomorrow, maybe not for another ten years," was the general attitude. In fact, during our fieldwork in September, 1977, there was another spill of about 5,000 gallons in the vicinity of Morristown, which had undergone both

the Sarnia and NEPCO spills. Many people alluded to this spill as proof that spills were endemic to the river. About 16% of the residents said, "There might be more spills, but I hope not." Only 3% said they did not expect another spill.

TABLE 35: Effect of NEPCO Oil Spill on Plans for Future River Activities for 501 Fringe Area Residents and Tourists, by How They Labeled the Event.

Effect on 1977 Plans	Business Disaster	Natural Disaster	Disaster-Other Kind	Not a Disaster	Total
Cancelled visit	0 0%	0 0%	4 2%	1 1%	5 1%
Postponed visit	0 0%	1 4%	21 8%	5 3%	27 6%
Multiple effects	0 0%	2 7%	20 8%	6 3%	28 6%
No effect	18 100%	24 89%	199 80%	164 93%	405 86%
Attracted me	0 0%	0 0%	5 2%	0 0%	5 1%
Total	18 100%	27 100%	249 100%	176 100%	470 100%

Chi square significance = $p < .06$

Contingency coefficient = .20

Number of missing cases = 31

It was disappointing to discover that few residents who were interviewed or answered questionnaires had any knowledge of actions being taken to reduce the chance of more spills and to improve spill response. Only 19% of those we interviewed mentioned improvements, or rumors of improvements, in this area. This awareness was spread evenly throughout the population: it did not depend on where one got most of his information, how he rated his information, or what he thought of the publicity surrounding the NEPCO incident. The results from the questionnaire to riparian property owners were identical: only 13% were aware of some improvements underway. There are three likely explanations for this result. First, people may not be impressed that proposed changes are significant; second, publicity of improvements may be insufficient; and third, people may have lost interest in the spill and are not following the news. Because of the high level of interest residents evinced in our interviews and in the exceptional response to our questionnaires, the third explanation

seems less likely than a combination of the other two, but it cannot be ruled out for some people.

Given the fact that most people expect another spill, how will they respond? What have they learned from the NEPCO incident that will affect their future response? The majority in our interviews (68%) say they won't do anything more because there is nothing they can do. "It's just like the weather," said one marina operator, "You say to yourself, 'here it comes'." They say that authorities should not stop the shipping, that human error cannot be eliminated, and that the massive technological response necessary is out of their hands. Thirty-two percent of the residents, however, do expect to respond differently next time. Seventeen percent say they will "get more involved": take greater self-protective measures, clean their own property more, sell equipment or services to the contractors, and so forth. Another 11% intend to "push harder" politically, demanding more from their elected officials, more from the insurance company, and more from the Coast Guard and contractors. Four percent said that another spill would cause them to sell their property or change their business. These attitudes of fatalism or activism are distributed evenly throughout the spill area. Those who took little action in the NEPCO events are the least likely by their own prediction to take much action in future spills, but we did note that 22% of those who did nothing in the NEPCO spill say they will be more active in the next spill. These data suggest that the level of activism grows with each spill, and although people's predictions of their own behavior are only rough indicators of what they will actually do, their response to similar future spills could well be even more intense.

The public's response to the Morristown spill in September, 1977, however, appears to have been low-keyed, but the spill was quite small, occurred when many residents were not on the river, and was efficiently handled by the pollution contractor and the Coast Guard. It is not a good indication of how people will respond to another large spill.

The majority of riparian property owners returning questionnaires intend to take more action in the next spill. Generally speaking, the more badly contaminated their property was, the more they intend next time to take self-protective action, help clean up, or create political pressure (Table 36). The less happy they were with treatment of their own property, the more likely they are to get actively involved next time (Table 37). Also, 42% of those who did nothing in 1976 say they will be more active in a future spill. Results from these questionnaires, in other words, give even stronger evidence than the interviews that the public's response to oil spills is cumulative.

As much other data in this report have shown, the public is divided in what it will be actively pushing for. We asked in our interviews what priorities should be followed in a cleanup campaign: who or what should be protected first? The Alexandria Bay area residents are more likely to support protecting and cleaning the businesses on the river first: "It's a matter of their livelihood." (Table 38). Downriver, the residents' emphasis shifts more to endangered wildlife areas. This split in priorities is also evident between yearround and summer people (Table 39). Such a division among the public will create difficulties in further spills for the Coast Guard, operating from its own stipulated set of priorities (which many people we talked to were not aware of).

TABLE 36: Anticipated Response of 605 Riparian Property Owners to Future Spill, by Impact of NEPCO Oil Spill on One's Property.

Anticipated Response	Badly Impacted	Lightly Impacted	No Impact	Total
Be more active for self-protection, cleanup	43 20%	62 24%	20 15%	125 21%
Push harder politically	33 16%	34 13%	14 10%	81 13%
Both of above	52 25%	38 15%	9 6%	99 16%
There is nothing one can do	81 39%	122 48%	95 69%	298 50%
Total	209 100%	256 100%	138 100%	603 100%

Chi square significance = $p < .001$

Contingency coefficient = .25

Number of missing cases = 2

TABLE 37: Anticipated Response of 605 Riparian Property Owners to Future Spill, by Rating Given Cleanup on One's Property.

Anticipated Response	Excellent	Adequate	Poor	Total
Be more active for self-protection, cleanup	19 28%	41 28%	21 18%	81 25%
Push harder politically	8 12%	24 17%	20 17%	52 16%
Both of above	6 9%	17 12%	36 31%	59 18%
There is nothing one can do	34 51%	63 43%	39 34%	136 41%
Total	67 100%	145 100%	116 100%	328 100%

Chi square significance = $p < .001$

Contingency coefficient = .26

Number of missing cases = 277

TABLE 38: Priority For Cleanup Efforts in a Future Spill Assigned by 97
Riparian Residents, by Location of Residence During NEPCO
Oil Spill.

Priority Assigned	Alexandria Bay	Chippewa Bay	Downriver to Massena	Total
Wild areas first	6 19%	5 42%	6 35%	17 28%
Business areas first	15 48%	3 25%	7 41%	25 42%
Other inhabited areas first	7 23%	2 17%	3 18%	12 20%
Most endangered areas first	3 10%	2 16%	1 6%	6 10%
Total	31 100%	12 100%	17 100%	60 100%

Chi square significance = not significant

Number of missing cases = 37

TABLE 39: Priority For Cleanup Efforts in a Future Spill Assigned by 97
Riparian Residents, by Seasonal Residence Pattern at Time of
NEPCO Spill.

Priority Assigned	Summer Resident	Yearround Resident	Total
Wild areas first	13 38%	4 15%	17 28%
Business areas first	8 23%	17 65%	25 42%
Other inhabited areas first	9 27%	3 12%	12 20%
Most endangered areas first	4 12%	2 8%	6 10%
Total	34 100%	26 100%	60 100%

Chi square significance = $p < .02$

Contingency coefficient = .39

Number of missing cases = 37

We turn now, to complete this section, to the state of the spill area's disaster culture after the NEPCO events of summer, 1976.

Our interviews with Coast Guardsmen and pollution contractors show clearly that both of these parties to a spill response have not been standing still since that summer. After an intensive self-evaluation of their handling of the NEPCO spill, the Coast Guard and Joint Response Team have made changes in contingency plans, methods of community liaison and of public information and news releases, and have proposed legislation to reduce the risk of spills on the Seaway, among other actions. Their support of this research is also a part of that self-evaluation and planning.

The pollution contractors have undergone the most visible and dramatic changes. The profits made on the NEPCO response have been converted into equipment: boats, trucks, boom, radio communications, and other gear. Cooperative arrangements have been made among contractors to insure that someone is available to respond to a spill rapidly and thoroughly. The contractors have more connections now with residents experienced in cleanup, supervision, and supplying services. Some residents have acquired useful equipment themselves so as to be in a good position to subcontract to the larger firms. Contractors may organize their work force in a more military manner, to conform more to Coast Guard expectations and to promote efficiency.

As for the residents' disaster culture, we may distinguish four areas where some change has occurred: 1) knowledge of the operation of the Seaway and its dangers; 2) preparation for disasters; 3) knowledge of what to do in the event of an emergency, what attitude to take, what values to maximize; and 4) knowledge of what others will do--the regional contingency planners, the Coast Guard and pollution contractors, the news bureaus, the government agencies, and local groups, among others.

1. Knowledge of the Seaway and its dangers. In the midst of the NEPCO emergency, the public sought and acquired answers to questions like, "How did it happen?," "What are the navigation regulations and who enforces them?," "Who is liable for damages and for how much?." More people came to a rudimentary understanding of how the Seaway was regulated, of the difficulties of navigation, of marine law, and the complex picture of jurisdiction shared by local, state, federal, and international agencies. A greater awareness of the river's history of spills led to a more realistic picture of the risk of navigation accidents and water pollution events. When emergencies like an oil spill occur, the public is pulled from its complacency and relative ignorance of a body of water that forms the beautiful backdrop for a summer cottage, to a fuller and more unsettling understanding of the risks and political complexities they have accepted by being present on the river. In personal interviews, residents, businessmen, and regular visitors pointed out or demonstrated this increase in knowledge. But we conclude that there is still a great deal of room for improvement. Too many people who should have a good understanding of the Seaway--marina operators, boaters, longtime residents, local officials--demonstrated in our opinion an inadequate grasp of it. Their preparation for another river emergency and their response to a spill can only be handicapped by this lack.

As for oil spills themselves, almost everyone we talked to said, "We know now what can happen." There is a great increase in understanding

how an oil spill happens, how the oil behaves in the water and against the shore. More people understand now what the oil can do to their property, and how it is controlled and cleaned up. Many people are quick to extrapolate from crude oil spills to imagine chemical or inflammable material spills, and to ask concerned questions about such an exigency.

2. Preparation for a pollution emergency. There is very little evidence that residents, community groups, or village or town governments have taken steps to prepare for the next event, though we have reported that most people expect another spill and many say they will respond differently. Many groups considered buying containment boom and were discouraged by its high cost. The Group Against Seaway Pollution attempted briefly to make arrangements with Coastal Services to provide resident teams to assist the company in the early stages of the next emergency, but negotiations were never completed. The village board of Alexandria Bay considered constructing their own makeshift boom to protect village docks, but the work has not been completed. A few individuals have rotten hay, cleaning compounds, or absorbent pads on their property that they intend to employ in another spill, but they are few indeed. As Slovic, Kunreuther, and White¹ have pointed out for all types of natural hazards, it is so difficult for a citizen to compute the actual risk involved in their occupation of a hazardous area that a reasonable cost-benefit analysis of self-protection--how much time and money would it be worth investing?--is impossible. Some residents whose docks were worn out or destroyed in recent years by high water, old age, or pollution emergencies have shifted from permanent stone crib docks to floating docks. Thus in an emergency such a dock could be moved or withdrawn from the water. This seems a wise choice, but it is unrealistic to expect most people in the next few years to do the same. Most people along the river expect, understandably, either to be protected from an oil spill by the professionals, or else to suffer the oil.

3. Knowledge of what to do in the event of a pollution emergency. As we noted earlier in this chapter, many residents are planning on taking a more active role in a future spill, through such simple measures as being quick about removing their boats from the water and listening to the radio more, or deluging their elected officials with letters of protest. More people intend to work at cleaning their own property. They know who among them will be the centers of information about events, what groups or individuals were active in the last spill and will probably be useful contacts in the next. A number are counting on working with the pollution contractors in the next spill. Others plan to deploy homemade boom around their docks if given enough warning.

The residents of the spill area remain split, however, over the attitude they will take in such an emergency. About half intend to "do something," "get involved," while the other half say "There is nothing you can do," and they will just try to be patient and live with it. There is also no consensus about the values to maximize, as we reported earlier. The

¹Paul Slovic, Howard Kunreuther, and Gilbert White, "Decision Processes, Rationality, and Adjustment to Natural Hazards," in Gilbert White, ed., Natural Hazards (London: Oxford University Press, 1974).

question of what gets first priority for protection and cleanup, and how much or what kind of publicity is most beneficial, still elicits controversy. More people are aware of how careful they have to be with newsmen, and what factors are considered in what gets cleaned or protected first, which may help in another emergency to ameliorate conflict, but the possibility of a consensus remains doubtful. The NEPCO oil spill area is also handicapped by a strongly seasonal pattern of residence which means that any individual or organizational plans for response to an emergency are weakened by the probability that 65% or more of the riparian property owners may be absent when something happens.

4. A knowledge of what others will do. Residents are generally confident that the spill in 1976 improved both the Coast Guard's and the pollution contractors' ability to handle other large river spills. They know that Sealand Restoration in Clayton, for example, is much better equipped and experienced for responding to the next spill. Most expect the Coast Guard to "have learned a lot from that one" even if they have difficulty specifying what was learned. More people understand the basics of the Regional Contingency Plan, the Joint Response Team, and the structure of command, advice, and responsibility that the plan specifies. We expect that there will be fewer random and unrewarding (hence frustrating) attempts to contact various state and federal agencies in order to demand action and find out facts. A few--too few--residents have attended meetings and conferences along the Seaway since 1976 which addressed water quality control, contingency planning, and changes in Seaway operations. Very few people are aware that the St. Lawrence Seaway Development Corporation in Massena has assumed a much larger responsibility for immediate spill response and supervision of a pollution emergency, and further, has developed a subregional contingency plan in conjunction with the Coast Guard. Some have heard that SLSDC has acquired more pollution equipment, but as of fall, 1977, none had seen evidence of it to boost their confidence. The St. Lawrence-Black River Planning Board had begun by fall, 1977 to explore the possibility of preparing local fire departments to assist in immediate emergency response, but residents don't yet know such efforts are being exerted. Most know of the St. Lawrence-Eastern Ontario Commission's relatively well-publicized research into the ecological and economic effects of the NEPCO spill, and some residents have been employed to assist that study. And many are aware of our social study of their own reactions, because of the wide distribution of questionnaires, interviews, and news releases in local newspapers. They do not know that state agencies such as the Department of Environmental Conservation have developed contingency plans for their immediate action and coordination with the Joint Response Team.

In sum, we conclude that the massive NEPCO spill and accompanying cleanup had an effect in developing all aspects of the river residents' disaster culture. There remain, however, gaps that could yet be filled. Most of the changes implemented as a result of the spill have been by the Coast Guard and the pollution contractors, but the residents, who are that critical third party in the event of another spill, have remained rather uninvolved. It is to address the gaps in disaster culture that might still be filled and to ameliorate the problems we have examined in the preceding sections of this report that we turn to the recommendations in the next section.

PART III

Introduction

No analysis of a social emergency like this one can reasonably expect to eliminate all disorganization and community upset stemming from a massive pollution accident and the equally massive response effort. It could be argued that a certain amount of crisis is inevitable and useful:

It is possible to argue . . . that the disorganizing aspects are necessary in order to develop the mobilization required to cope with the tasks at hand. . . Disaster planning should . . . not impose an impossible model of human and technological efficiency which has little relationship to reality.¹

With the above attitude in mind, we shall examine ways that some of the problems the public encountered in the NEPCO incident could be ameliorated in the event of another major pollution event with roughly similar social characteristics. The Coast Guardsmen we have interviewed unanimously stated that "Every spill is different," an important attitude if they are to remain flexible to respond most efficiently, and we concur to an extent. The time of the year a pollution accident occurs, the type of contaminant let loose, the area of the river threatened, the weather conditions, and other factors are bound to make the next accident different from the NEPCO oil spill and will require a different response.

But there will be important similarities in the public response and in the problems they encounter which are not completely dependent upon the characteristics of the pollution accident. Developing a consensus on labeling the event, handling publicity, acquiring and spreading information, perceiving and interacting with the Coast Guard and pollution contractors, initial alert and self-protection, and other tasks will always confront the public. This is what the more extensive research on communities in natural disasters like floods, tornados, and earthquakes, suggests to us about massive pollution events.

An oil spill control course that has come to our attention while finishing this report has, we are pleased to note, identified in general terms a number of the problems discussed here and made some of the same recommendations.²

There is no doubt that most of the recommendations herein will require money and time. We lack the data or skills to perform a cost-benefit analysis and are not certain, given the intangibles involved, that it could be done. The Coast Guard and the St. Lawrence River residents (or other

¹Dynes, Organized Behavior in Disaster, p. 212.

²Texas A & M Research Foundation, Oil Spill Control Course, American Petroleum Institute Publication no. 4271, 1975, pp. AA2-AA11.

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REDUCING PROBLEMS OF THE PUBLIC IN AN OIL SPILL: S CASE STUDY 0--ETC(U)

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residents on water bodies), to whom this report is addressed, will have to select which recommendations they wish to invest in.

The problems that we shall be referring to in the next chapter may be summarized in a list.

1. The public's image of and interaction with the U. S. Coast Guard during non-emergency times needs to be improved and can aid pollution response.

2. The public's understanding of the Seaway operations and the federal response to pollution emergencies is rudimentary and hampers response to pollution.

3. The flow of public information during a pollution emergency needs to be increased, duplicated, and presented through a wider variety of channels.

4. The public needs more formal preparation for pollution emergencies and more active involvement in the organized response.

5. The tasks of coping with the political and emotional responses of the public to a massive pollution event should not fall so intensively on the Coast Guard.

6. The public's expectations for the performance of the Coast Guard and pollution contractors in a major pollution event are not shared by the Coast Guard and pollution contractors.

7. The socially heterogeneous population of a spill area poses obstacles to creating a disaster consensus, a problem manifested in the "media dilemma" and the controversy over priorities.

CHAPTER TEN

RECOMMENDATIONS

The thrust of the recommendations here is to improve the public's impression and acceptance of the U. S. Coast Guard as the responsible, knowledgeable, and concerned leader of a pollution response on the Seaway or similar water body. Both the Coast Guard stations on the river and the Captain of the Port of Buffalo (the On-Scene Commander of a Great Lakes-St. Lawrence Seaway pollution emergency) can contribute to this end. The Coast Guard will attempt to increase the public's knowledge of the contingency plans and to improve the public's organization in preparation for a massive pollution event. They can do this by 1) disseminating information in advance--we recommend a pamphlet, and 2) encouraging local contingency planning that acknowledges the social dimension of spills. In the event of a massive pollution event, however, some tasks that we recommend for dealing with public problems should be delegated to other parties, also prepared in advance. In this way the Coast Guard can devote its full energies to the management of the pollutant.

The Coast Guard, with the aid of the St. Lawrence Seaway Development Corporation (SLSDC), which is now assuming a greater role in pollution response, should prepare for distribution--both before and during a spill--a pamphlet advising riparian property owners what they should reasonably expect and what they should do in a spill. The pamphlet should contain the following types of information which we have concluded the residents do not know well enough and which will improve the accuracy of their response and cooperation with the Coast Guard:

1. An explanation of the Great Lakes-St. Lawrence Seaway Regional Contingency Plan, showing who will respond, when, to what kinds of events, what their organizational structure will be, and how the tasks are apportioned.
2. An explanation of the subregional contingency plan prepared by the St. Lawrence Seaway Development Corporation, in a format similar to the above.
3. A brief scenario of how an accident, with the attendant risk of pollution, would be reported and monitored. The idea here is to give the public a sense of the emergency decision-making which must be done in the first few hours and which is already organized. Who calls whom? Who gives what orders? What are the various concerns to be considered in making decisions--vessel traffic, pollution, human lives, wildlife, etc.?
4. Instructions to the public and an explanation of how they will be involved.
 - a. How they should report the discovery of water pollution.
 - b. How they will be alerted to the discovery of water pollution. (We shall discuss alert again later.)
 - c. How they should respond upon alert.

1. Possible self-protective measures.
2. Spreading the word.
3. Seeking further information: procedures to be followed for different kinds of questions (also to be discussed again below).
4. Information about cleaning one's property.
5. How people can volunteer services, supplies.
- d. How the public should approach responsible parties in the field. The Coast Guard monitors and pollution contractors will be most visible. The public must be instructed not to impede work. They must be further instructed that monitors and crews are carrying out orders from headquarters and have limitations in the decisions they can make and in the information they have of overall progress and policy. Instead, requests or reports should be made to Coast Guard field supervisors, whose field bases will be made known, or to the public information center (to be discussed later).

5. A note about containment and cleanup of river pollution.

We deem this section of the pamphlet to be very important for increasing the accuracy of the public's response to such events. It must be pointed out that control and containment of contaminants on a complicated water body like the St. Lawrence River is a task requiring 1) a great deal of scientific research, which is now progressing rapidly, and 2) a good portion of on-the-scene innovation, because "every spill is different." After control and containment have been achieved, the process of removing contaminant begins. This, too, has a sequence. First, the loose contaminant, then the shoreline. The Coast Guard should publish its priorities, or if that is impractical, address the factors which influence the on-the-scene creation of priorities. They should explain, for example, the imperative of cleaning downriver with the current to reduce recontamination, if that is in fact a general policy.

It must be acknowledged that a major pollution event calls forth a response which includes both the most sophisticated of Western tools, communication systems, and information processing devices, as well as the most primitive. The response includes not only the highly trained Atlantic Strike Force and high capacity skimmers, vacuum boats, and water lasers, but also the invaluable manual laborer, the "mucker," removing contaminants the only way possible--with his or her hands. Completing an extensive cleanup can proceed no faster than this hard, messy, slow work.

6. The public must be reminded that while one portion of the Coast Guard is engaged in the pollution response, another portion is involved in the assignation of legal responsibility for the pollution, and, if the situation calls for it, the polluter's punishment.

A brief description of the polluter's responsibility and the legal procedures are in order here.

The importance of assistance by the public could be reiterated by drawing attention to the "fingerprinting" technique of determining the source of oil pollution violations. The public's reporting discovered contaminants, as a consequence, can be useful even if the violator has left the scene.

The Coast Guard's production and distribution of this pamphlet to riparian property owners and other interested persons will redound to their own credit. The pamphlet not only spreads information by its content, but by its very existence suggests that the responsible parties are planning ahead and concerned about involving the public. To that end, the language of the pamphlet must be straightforward, recognizing problems and weaknesses as well as strengths. The public will support the position of the Coast Guard if the latter tacitly admits that pollution response is a difficult and unpleasant job. The humane and exciting lifesaving responsibilities of the Coast Guard, by which most citizens know it, is a far cry from management of a pollution emergency.

Distribution of the pamphlet during non-emergency times should be accompanied by a Coast Guard representative's presentation summarizing its contents. This presentation, if handled in the same tone as the pamphlet, will also increase valuable communication between the public and the Coast Guard stations on the river or, when possible, the Captain of the Port of Buffalo or his representative. The St. Lawrence Seaway Development Corporation could also conduct these presentations. Presentations should be offered to already existing organizations on the occasion of their regular meetings. Seasons other than summer are best suited to both Coast Guard public relations efforts and the work schedules of yearround residents. Summer meetings can be arranged with summer residents' associations.

The pamphlet should be mailed (or advertised for sale) to all riparian property owners and selected other individuals, agencies, or groups. In the event of a pollution emergency, it should again be available for distribution. We recommend it be distributed without cost to reach the largest possible readership.

Some contents of the pamphlet described above are derived from recommendations that follow. However many of our recommendations prove practical, we believe the public need for the pamphlet remains.

We have already alluded to the need for improving the public's reception of the Coast Guard on the river. In Chapter Three some problems were found to exist before the spill, and in Chapter Seven additional problems of the public's response to the Coast Guard were identified. There are several specific areas concerning public relations that are germane to this report.

1. A fuller partnership between the Coast Guard and local talents and organizations needs to be developed. The act of spreading the information in the above pamphlet will help. Encouraging local contingency planning will also help. (Possible roles for the public will be listed further below.) Disaster research has shown that the perception of the responsible parties as "outsiders" depends more on the latter's demonstration of shared interests with the victims than on their actually being natives or local residents.¹

2. Coast Guard activities in the river settlements where they are stationed are few outside of boating safety lectures. The Coast Guard Auxiliary is a citizen's group that can help increase public relations

¹Dynes, Organized Behavior in Disaster, pp. 100-101.

activities. The group had been little used on the St. Lawrence River until the NEPCO incident, when they were asked to help patrol the river for a short time.

Both the local Coast Guard stations and the District Headquarters should attempt more news coverage in waterfront areas. Releases to the media can publicize the entire gamut of Coast Guard responsibilities, progress in pollution control, advice to residents, information on legislation pending and legal actions taken, the service's history, popular interest stories, and many other topics.

3. Local Coast Guard stations, as they assist in the public relations effort, should point out that they will be assisting the pollution response only to the extent that they do not jeopardize their primary tasks of search and rescue, vessel inspection, etc., and that their staff size, training, or inventory of equipment is for the most part irrelevant to the operation, since staff and equipment are supplied by other Coast Guard branches, pollution contractors, and the SLSDC. Local stations, however, can be very useful in setting a local contingency plan in motion. One important small equipment item they can provide is an up-to-date navigation chart for every monitor, the lack of which in 1976 caused some resident outrage.

4. To reduce complaints that Coast Guard personnel "don't know the river," each serviceman in the field during an emergency, especially those not from the river, should be accompanied by a resident intimately familiar with the river and the shoreline. This resident will be useful for avoiding boat damage, interacting with residents encountered during duties, and finding locations by their place names--a difficult task even for some residents.

5. Coast Guard field personnel should be aware of the types of public problems identified in this report which affect their relationship with residents, so as to be prepared for a variety of resident responses to their role and to react in a way that addresses the assumptions and emotions behind those responses as well as the explicit responses themselves.

6. Some Coast Guardsmen recommended keeping careful log books on interactions with residents while in the field, and we concur. This has two uses. First, it provides better data during briefing sessions as to what the residents are requesting, what complaints are common, and what kinds of questions or misunderstandings persist, which may assist not only the On-Scene Commander, but also the public information officer in directing the content of his news releases. A well-informed resident to assist in the interpretation of these data might be useful. Second, the log book provides residents with another means of communicating with headquarters, and makes the monitor an intermediary instead of a non-responsive agent who can only refer residents to others.

The public's need for information is very high during a major pollution event. Spill area residents mobilize, as we have shown, to seek that information. Those who evince little interest in river operations during non-emergency times become very interested after a spill. At such a time, the pamphlet proposed above can supplement news releases and public meetings. It can be handed out by Coast Guard field personnel as well as distributed at public meetings and from a public information center.

In their own decision-making, the Coast Guard must distinguish the residents and pollution victims from the general public, in that the

latter are content with good news coverage, whereas the residents, who are participants in the event, want more information than is reasonable to present in the mass media. To supplement mass coverage, a public information center needs to be established and regular citizen meetings held.

The Coast Guard should hold public information meetings more often and in more locales than occurred in the NEPCO incident. Many residents who attended such meetings early in the 1976 NEPCO incident reported that they were impressed with Coast Guard leadership and some of their confusion and worry was at least spoken to if not totally assuaged. These useful meetings were in Alexandria Bay and should have been repeated in downriver locations almost immediately. The Coast Guard should take the initiative in calling meetings. The public information officer can arrange with local organizations to host these meetings in their area soon after the incident.

A public information center should be established in an easily accessible central location, staffed with a variety of knowledgeable people, and equipped with a bank of telephones. This center will come as close as possible to the "Salvation Army function" discussed in Chapter Seven because it will be staffed partly by area residents, will attempt to diagnose public problems, and will fulfill several other socially oriented functions. It will be prepared to receive and answer (or refer with precision) these kinds of calls:

1. "There is pollutant on our shore."
2. "I have a soiled pet or wild animal--what do I do?"
3. "I want to clean my rug or remove pollutant from my beach: how do I do it?"
4. "I want to offer my boat (my dock, my services) to help."
5. "I want to file a claim."
6. "I have a complaint (a compliment)."
7. "I can see the pollutant on the water: how can I protect myself before it gets to me?"
8. "When are you coming to my property?"

The ideal staff for this operation would include a resident intimately familiar with river, shoreline, and local society; a Coast Guard public information officer; a representative of the SLSDC; a member of an environmental agency such as the Environmental Protection Agency or the State's Department of Environmental Conservation; a representative of the District's Congressional office; and a Sea Grant Advisory Service extension agent.

The center should refer claims calls to a separate insurance representative's office; the member of the environmental agency can advise about pets and wildlife or refer callers to a veterinarian; offers of help can be referred to the pollution contractors. Residents wishing to contact their political representatives can speak to the Congressional aide. The area resident at the center can identify shoreline place names and supply a socially perceptive and sympathetic ear. The public information officer can speak to newsmen, and will have a direct line to the On-Scene Commander to relay complaints and requests to him as well as receive progress reports from him. News conferences should be held at this public information center. The St. Lawrence Seaway Development Corporation and Sea Grant personnel will assist the public information officer by their knowledge of the area's resources and social structure and their experience in public information in the region.

If a pollution incident should occur at a time when few property owners are resident on the river, SLSDC and Sea Grant representatives could supplement news releases with their own organizations' publications mailed to permanent addresses of riparian property owners. The first widespread press releases could request riparian residents to send their name, address, phone number, and precise location of their riparian residence to the public information center, whereby they might receive regular pollution bulletins to augment the more meager information carried in their home area news.

In the event that seasonal residence is at its maximum, the Coast Guard should continue to take the initiative, as they have done since the NEPCO incident, to enlist local radio stations for public information. Frequent and updated radio bulletins will be welcomed, we are told by both the radio stations and the public, and should not only carry progress reports but repeat many of the instructions being distributed by the public information center. Radio bulletins should also refer further inquiries to the public information center.

The public information center should attempt to compile and publicize a rough short term work schedule which can indicate to inquirers where the oil is, where the work is going on, and when one might reasonably expect to receive help. Residents and Coast Guard field workers alike expressed a need for such a schedule, even though exigencies prevent making promises about who will be cleaned when.

The public information center can tell callers where materials for protecting or helping to clean their property can be obtained. Our suggestions for this are discussed further below.

Key individuals or groups throughout a spill area, as we noted in Chapter Five, play an informal but important role in information dissemination. Special efforts to keep them informed will accelerate the spread of information. The SLSDC, Sea Grant Advisory Service, and the area resident at the center can identify such groups and individuals and anticipate their needs.

This multiplication of information by news release, radio, information center, pamphlet, and mailings is necessary and useful for the Coast Guard and the public. Different residents rely on different information sources. Many summer residents in 1976, for example, never read the Watertown Times and its hundreds of column inches of coverage of the NEPCO incident. Information, in order to penetrate during a crisis, requires repetition.

Contributing to the public upset in the early days after the NEPCO oil spill was the sense of helplessness and not knowing what to do as the pollutant moved in the river and toward one's property. Americans, more than people in many other cultures, have an activist approach to emergencies: they want to do something. The Coast Guard, in encouraging local contingency planning to recognize the social problems, can make selective use of this need to get involved and thereby diminish somewhat the sense of helplessness. A certain amount of contamination to the area may also be avoided this way.

Local contingency planning should include more resident participation in alert, protective action, and some of the tasks of the main responsible parties. We have already discussed residents' participation in public information and aid to the monitors, but other roles are also possible.

In preparing themselves for a pollution emergency, the residents need to have some plan of access to materials for self-protection and, perhaps, cleanup on their own property. They may 1) individually purchase certain materials for use on private property, 2) purchase collectively--by village or residents' association, for example--certain materials for use on communal property, and 3) develop connections with pollution control contractors for acquiring and distributing other materials.

Property owners should keep plastic sheeting for tacking around and over docks and attaching to boats that cannot be removed from the water easily. Swimming areas and beaches can also be draped by using a variety of ad hoc techniques. Rotted hay is useful for some conditions. Notice of an hour or two may be sufficient for residents on the scene to reduce the degree of contamination to dock cribs, boats, and beaches. Absorbent boom and absorbent pads may be purchased by groups for similar purposes.

If the pollution contractors are to supply the bulk of protective materials, tools, and garbage bags, etc., arrangements should be made with resident groups about what will be available, where, how soon, and what it is good for, so residents can take the quickest possible "first aid" measures.

This report cannot prove that there are actions that residents could usefully take for themselves, nor can it prove that if given advice, residents would actually take those actions. Both these propositions definitely deserve further inquiry. We do know that a sizeable number did try to do something for themselves in the NEPCO spill, and would appreciate further instruction. We also know that another portion of the river population intends to do more in the next spill, and they too would probably benefit from advice.

Residents' associations should be encouraged to arrange cooperative "first aid" plans so that those present at the river can provide assistance to those far away at the time of an emergency.

Consideration should be given to creating local volunteer or commercial groups from yearround residents of the area which at first alarm move with some of this "first aid" equipment to threatened private property and take action in the absence of the owner. Property owners who wish this assistance could subscribe in advance with these groups.

Such efforts at preparation and self-protection by the public are predicated on the existence of a swift and immediate alarm system which the Coast Guard should propose be developed in and by riparian communities. In the NEPCO incident, many hours elapsed between the accident and awareness of it by residents downriver of Alexandria Bay. An alarm system is of greatest use, of course, in the summer season when the riparian population is highest.

The first evidence of an accident threatening a hazardous spill should be relayed to fire departments in the villages and townships on the river below the accident, for the purpose of sounding a general hazardous spill alarm by a pre-designated and publicized code. This would alert residents to turn to their radios where the first bulletins concerning the nature of the accident and suggested precautionary measures could be released. Local radio stations would have to be included in local contingency planning so that they might have in advance a format of the information the Coast Guard wants to broadcast and the information the public needs to know to react.

The fire station sirens could be supplemented by a party in a boat with a loud hailer moving downriver from the scene of the accident.

The alarm would also notify the following groups to take action.

1. A local emergency skills group which had been predesignated to supplement the first pollution contractors, SLSDC teams, and Coast Guard on the scene with their boats, manpower, or river knowledge.

2. Groups who would be providing "first aid" protection, voluntarily or commercially, to predesignated shoreline areas, especially private property.

3. The Coast Guard Auxiliary, to whom the Coast Guard might assign the responsibilities of clearing the river of pleasure craft, patrolling deployed containment boom, or circulating the alarm by loud hailer, among other tasks.

4. Groups such as Ducks Unlimited who could rendezvous with State Department of Environmental Conservation officers to collect, chase away, or reconnoitre wildlife concentrations in threatened areas. Unskilled manpower is not very useful in cleaning soiled wildlife, but may be very valuable in the early stages of an emergency to protect wildlife.

5. The predesignated resident liaison(s) to the Joint Response Team, to which we now turn.

The public and the Coast Guard agree that resident observers on the Joint Response Team could serve several purposes. First, the observers could speak for the public's needs and report on the public's reaction to the pollution incident and to the government's actions. Second, the observers could report to their constituents on the activities of the Coast Guard response headquarters and the Joint Response Team. The observers would be important figures in the public meetings convened in the early days of the incident.

The person or persons in this liaison position should be selected in advance by the river residents with the approval of the Joint Response Team. The observers should also be the main broker for the Coast Guard in developing residents' involvement in the local contingency plans, and thus will have become familiar with the plans and have rapport with the relevant groups or individuals before any application of the plans in an actual emergency.

These resident liaisons to the JRT, upon alert, could notify other residents who will be playing a role in the local response: the resident to work in the public information center, local government elected officials, the Sea Grant Advisory Service extension agent, and other parties. The liaisons may also be able to maintain an updated list of privately owned equipment at the disposal of the Coast Guard and pollution contractors.

A few suggestions concerning Coast Guard monitors and pollution contractors' crews complete these recommendations.

To facilitate evaluation of the performance of pollution contractors' crews, who are frequently in the public eye and thus play a large role in the public image of the entire cleanup operation, crews should be identifiable by the company and the foreman. By signs or uniform markers of some sort, a working group should be recognizable as part of company X, foreman #3, for example. The public's praise or criticism of work crews can thus be made more precise. The Coast Guard should encourage residents' praise or criticism of work crews to supplement the evaluation by their own monitors in the field.

There are secondary benefits to this practice, too. Part of the complaints from residents about haphazard movement of crews is due to the facts that 1) some crews were specialized in function and had a different work schedule from other work crews but to the public they all looked the same, and 2) residents at the borders between the contractual territories of the pollution companies saw their neighbors cleaned by one company long before another company arrived at their own property, which happened to be in another territory. An understanding of who is cleaning what, and the ability to tell the workers apart, may reduce this problem.

Finally, some comments on Coast Guard monitors. Efforts should be made to match foremen and monitors for the best working relationship, a suggestion heard from both foremen and monitors we interviewed. Though monitors should not participate in the cleanup crews' work, relations between the two parties would be improved if monitors were expected to observe the work so closely that they too became soiled. This would reduce the "white collar-blue collar" distinctions between the parties which both reported to us and which sometimes reduced the supervisors' efficiency.

Monitors who are to work in the most densely populated areas and in areas of primarily private property should be selected for their skill in public relations.

Regular and reservist Coast Guardsmen alike who are ordered into a massive pollution emergency and distinguish themselves should be considered for awards for meritorious service. We learned from our interviews with Coast Guardsmen who worked in the NEPCO incident that several of the conditions of combat were present: fatigue, loneliness, flagging morale, discomfort, and personal sacrifice. That monitors were supervising workers who were making more money than they also was an aggravation. Some additional incentive to Coast Guard performance in such an emergency should be considered.

To conclude this chapter, it is our impression that the official response to another large-scale pollution accident on the St. Lawrence River will be superior to the response in 1976. The public, however, especially if the spiller refuses liability, is very liable to react more strongly. The sophistication needed in handling public problems will thus be greater. The potential victims, many of whom want to know more and do more, and without whose support the Coast Guard's job is made more difficult, have been the least involved party in the advances in spill research and planning in recent years.

This report on the social impact of a major pollution event and the recommendations for dealing with some of the problems that arose--and will arise again--have been produced with Coast Guard support. Although this report has focused primarily on a heavy oil spill and on the St. Lawrence River, we submit it as a model for similar social research, both during and after a pollution emergency in other spill areas. The recommendations, too, can be applied with local modifications to other potential or actual spill areas.

APPENDIX

1. QUESTIONNAIRE TO FRINGE AREA RESIDENTS AND TOURISTS

CHECK ONE ITEM FOR EACH STATEMENT UNLESS DIRECTED. FEEL FREE TO WRITE EXTRA NOTES ON THIS QUESTIONNAIRE.

1. I am ☐ the household head
☐ another member of the household
2. I am ☐ male
☐ female
3. My age is ☐ less than 21 ☐ 41-50
☐ 21-30 ☐ 51-60
☐ 31-40 ☐ over 60
4. My present or most recent occupation: _____
5. Check the one that best applies:
☐ We own or rent a camp on the river
☐ We are boaters, fishers, or sportsmen on the river, but have no camp
☐ We visit the river area for sightseeing, shopping, dining, not so much for water sports
☐ We have never been to the river except to pass by (If you check this, please continue anyway--your answers are still useful!)
6. Most of the information I know about the spill and cleanup comes from: (Please rank these items from 1 (most information) to 4 (least information).)
☐ looking around and talking to people at the river
☐ talking to acquaintances who had been to the river
☐ newspapers, television and radio reports
☐ another source (please specify): _____
7. I followed the spill and cleanup events' history
☐ very closely ☐ very little
☐ with some interest ☐ I didn't even know about it
8. Did you see the St. Lawrence Seaway in 1976? (You may check more than one item.)
☐ no ☐ in July
☐ before the spill of June 23 ☐ in August
☐ in June after the spill ☐ in a later month: _____

9. If you saw the river after the spill, how did what you see compare with what you had heard or read?
- ___ what I saw was worse than what I heard or read
- ___ what I saw was pretty much the same as what I read or heard
- ___ what I saw was not as bad as I expected
10. Were your 1976 summer plans to visit the Seaway influenced by what you heard, read, or saw?
- ___ no
- ___ yes, I postponed my visit until later in the summer
- ___ yes, I cancelled my visit
- ___ yes, the spill events attracted me to the Seaway
- ___ yes, for another reason (specify): _____
11. Were your 1977 summer plans influenced by what you heard, read, or saw?
- ___ no
- ___ yes, I decided to visit the Seaway more often or for a longer period
- ___ yes, I decided to visit for a shorter period or less often
- ___ yes, I cancelled my visit
- ___ yes, for another reason (specify): _____
12. What was your impression, from what you heard, or read, or saw, of the performance of the following? (check one line for each group):
- | | Very Good | Good | Fair | Poor | Very Poor | No Opinion |
|---|-----------|------|------|------|-----------|------------|
| the Coast Guard (in charge of cleanup) | ___ | ___ | ___ | ___ | ___ | ___ |
| the cleanup crews | ___ | ___ | ___ | ___ | ___ | ___ |
| the St. Lawrence Seaway Development Corp. (in charge of Seaway traffic) | ___ | ___ | ___ | ___ | ___ | ___ |
| the citizens whose property was oiled | ___ | ___ | ___ | ___ | ___ | ___ |
| elected officials responsible for the area | ___ | ___ | ___ | ___ | ___ | ___ |
| others (please specify): _____ | ___ | ___ | ___ | ___ | ___ | ___ |
13. Would you call the events of summer, 1976, a disaster? Why or why not?
14. Please make any additional remarks about the oil spill, the cleanup, and the people involved, in this space.

2. QUESTIONNAIRE TO RIPARIAN PROPERTY OWNERS

CHECK ONE LINE FOR EACH STATEMENT. FEEL FREE TO ADD YOUR COMMENTS ON THE QUESTIONNAIRE.

1. I am ☐ the household head
☐ another member of the household
2. I am ☐ male
☐ female
3. My age is ☐ less than 21 ☐ 41-50
☐ 21-30 ☐ 51-60
☐ 31-40 ☐ over 60
4. My present or most recent occupation is _____
5. We have:
☐ a yearround residence near the river
☐ a summer residence near the river
☐ an island
☐ a commercial establishment near the river
☐ no property, but put our boat in the river
☐ none of the above
6. Our property is located at or near _____
7. The oil spill of June 23, 1976, in my opinion
☐ hit us badly
☐ hit us lightly
☐ didn't directly affect us at all
8. After the spill, we
☐ filed a claim and were compensated
☐ filed a claim and have not been compensated
☐ initiated a suit
☐ neither filed a claim nor sued
9. Overall, as a result of the spill and cleanup, I think that
☐ we sustained an economic loss
☐ we realized an economic gain
☐ we neither gained nor lost economically
10. The cleanup crews: ☐ worked on our property in _____ (month)
☐ did not work on our property
11. The cleanup on my property after the spill was
☐ excellent
☐ adequate
☐ poor
☐ my property was not cleaned

12. The cleanup in the wild areas was, in my opinion
☐ excellent
☐ adequate
☐ poor
☐ I have no idea
13. The cleanup in general in the inhabited areas was, in my opinion
☐ excellent
☐ adequate
☐ poor
☐ I have no idea
14. After the spill,
☐ we provided services, or rented or sold supplies for the cleanup operation
☐ a member of our household was employed in the cleanup operation
☐ neither of the above
15. Most of what I know about the spill and cleanup has come from:
(Please rank these items from 1 (most important) to 4 (least important).)
☐ personal experience on my property and direct observation of the area and events
☐ newspapers, radio and television
☐ acquaintances, neighbors, and other conversations
☐ contacts with cleanup personnel and/or the Coast Guard
16. Would you call the events of last summer a disaster?
Why or why not?
17. I talked in person to, or telephoned, or wrote to (check any that apply):
☐ my elected representatives
☐ other government officials or agencies
☐ members of the U.S. Coast Guard
☐ cleanup company personnel
☐ other responsible party (specify): _____
18. Influenced by the spill and cleanup of summer, 1976, I (check any that apply):
☐ plan on coming less often to the river
☐ plan on coming more often to the river
☐ plan to, or have altered, my commercial operations along the river
☐ plan to or have sold out and left the area
☐ plan to or have bought river property or a business
☐ have altered my recreational use of the river
☐ other (specify): _____
☐ have no change of plans

19. Please rate the following for their performance in the events of the summer of 1976 (check one box in each row):

	very good	good	adequate	poor	very poor	no opinion
U. S. Coast Guard (in charge of cleanup)						
the cleanup companies						
the cleanup crews						
St. Lawrence Seaway De- velopment Corp. (in charge of Seaway traffic)						
the insurance company handling claims						
residents along the river						
elected officials of the area						
the newspapers, radio, TV						
other (specify): _____						

20. Are you aware of any changes since summer, 1976 that have been made to prevent oil spills or clean them up better?
21. What would you recommend be done differently next time if there is an oil spill in your area?
22. What would you do if there is another oil spill in your area?
23. Our community's response to being hit by an oil spill
(finish this sentence):

24. The thing that bothers me most about the entire cleanup operation is:
25. The most admirable thing about the entire cleanup operation is:
26. I would compliment the Coast Guard during the spill cleanup for:
27. I would criticize the Coast Guard during the spill cleanup for:
28. Please make any additional remarks about the oil spill, the cleanup, and the people involved, in this space.

3. SCHEDULE OF QUESTIONS FOR
INTERVIEW WITH RIPARIAN RESIDENTS

(Pick up a little background about the informant along the way: years on river, general occupational line, whether commercially involved in Seaway, months of occupation on river.)

History

1. How much oil did you get (extent of oil damage on property)?
2. When and how did you first become aware of the spill (observation, friends, radio, etc.)?
What did you do then? (Look for indications of self-help or search for information.)
3. Any previous experience with oil spill (or other major pollution event)? How does this compare?
4. When did the cleanup crews come? At your request? (How did you get them to come?)
5. Did you have any contact with the Coast Guard (telephone, in person, correspondence, etc.)? Comment on your treatment and impressions.
6. Did you file a claim? Were you satisfied with your reception and their response?

Information

7. Did you contact any other persons regarding the oil spill, like the Dept. of Environmental Conservation, elected officials, wildlife people?
8. How did you get most of your information about the oil spill and cleanup events?
9. How would you rate the publicity and amount of information about the oil spill events?

Community Response

10. Did your community or neighbors do anything to respond to the emergency? (meetings, organizations, suits, cooperative work, etc.)
11. Did you attend any meetings, such as GASP's or the Forums? Comments?

Evaluation

12. Would you call the events of last summer a "disaster"? Why or why not?
13. How do you rate the cleanup companies and their crews?
14. How do you rate the Coast Guard's participation?
15. Did any "good" come as a result of the events of last summer?
16. What would you recommend the Coast Guard do differently in the event of another spill here?
17. Who or what do you think should be given priority in a spill cleanup?
18. Who was not much involved in the oil spill response that you feel should have been involved?
19. Do you have recommendations for the way oil spills ought to be handled?

Future

20. What will you (and other summer residents) do differently next time there is a spill? (What have you learned as a result of last year's spill that would influence your response to another spill?)
21. Did the spill of last summer change your future plans or behavior in

any way (for example, planning to sell out, or come less often,
or organize politically, etc.)?

22. What do you think will happen in the future? (more legislation, more
spills, better cleanup, no change, etc.)
23. Has the river been affected seriously by last summer's spill?

4. SCHEDULE OF QUESTIONS FOR
INTERVIEW WITH COAST GUARD PERSONNEL

History (Keep this section fairly short.)

Tell me something of your involvement in the spill response:

1. When did you come, and for how long?
2. What were your duties? What kind of instruction did you get in the performance of them?
3. Who did you work with (under and above)?
4. What association did you have with government agencies (DEC, EPA, SLSDC, Canadians, etc.)?
5. What association did you have with the cleanup companies and crews?
6. What association did you have with the residents?
7. Tell me something about the training and experience you had before the spill that helped you in the spill.

Information/Communication (Keep short.)

8. How would you rate the information that you had to work with?
9. How would you rate communication between the different parties: you and others, others and others? Were you out of contact much?
10. How would you rate the publicity of the spill?

Evaluation

11. Would you comment on the response of the river residents to the spill? What problems did you perceive them to be having? What faults and mistakes?
12. What problems did you have in dealing with the citizens? With the crews?
13. How would you evaluate the relations between the cleanup crews and the residents? Faults or mistakes?
14. How would you evaluate your expectations for yourself versus your performance in the spill response? What was your biggest problem?
15. How would you evaluate your expectations of others versus their performance?
16. Were there agencies or persons not involved who should have been?

5. SCHEDULE OF QUESTIONS FOR
INTERVIEW WITH POLLUTION CONTRACTORS AND CREWS

Background

Mention age; native of area or not; previous experience with such work; other relationships to river (property owner, summer employee, etc.).

History

1. How did you hear about the spill?
2. How did you get involved in cleanup?
3. What was your work like?
4. When did your work stop, and why?

Information

5. How would you rate the information your crew (group) had to work with?
6. What was your method of communication with other people (bosses, Coast Guard, public)?

The Group (Adjust if person was higher up.)

7. Tell me about your crew. What kind of a group was it? (Composition, interaction.)
8. Tell me about your foreman and supervisors. How were they?

Evaluation

9. Would you call the events of last summer a disaster? Why or why not?
10. What did you see of the Coast Guard and what can you say about them in this cleanup?
11. How do you rate your crew's performance? The cleanup performance overall?
12. What were the major problems in cleanup?
13. Did your crew see property owners where you worked? How did you deal with one another?
14. What were the main problems you saw the Seaway area residents having as a result of this spill? Suggestions for solutions?
15. Did you notice any other agencies, groups, or individuals in responsible positions getting involved somehow in the oil spill response? What can you say about their role? (e.g., DEC, mayors, etc.).
16. Did any good come as a result of the events of summer, 1976?
17. Any suggestions for the way cleanup ought to proceed next time, based on what you've learned in the last one?
18. Do you think the river was seriously affected by the spill?
19. Any problems, complaints, praise you have that haven't been covered here?

6. SCHEDULE OF QUESTIONS FOR
INTERVIEW WITH LOCAL GOVERNMENT AND AGENCY OFFICIALS

Background

1. How does your job relate you to the river?
2. What are the skills and powers you need to do that job?
3. What is your "territory" on the river (e.g. all of it, just the Alexandria Bay area, etc.)?
4. How long have you been officially or personally involved with the river?

History

5. How did you first hear of the spill?
6. What did you see as your (and your agency's) role?
7. What did you do? When did you stop and why?
8. Who were your contacts/who did you work with (especially other officials or agencies)?
9. What contact did you have with:
the Coast Guard?
the cleanup companies and crews?
the residents?
10. What did you see of the spill?

Information

11. How would you rate the information that you had to work with?
12. How would you rate communication between the different parties involved?
13. How would you rate the publicity of the spill? The cleanup campaign?

Evaluation

14. How would you evaluate your expectations vs. your performance?
15. How would you evaluate your expectations vs. the performance of the other responsible parties?
16. Would you comment on the response of the citizens along the river?
17. What problems did you see the river area residents having?
18. What can you say about the Coast Guard's management of the cleanup campaign?
19. How would you evaluate the cleanup companies and workers?
20. Were there agencies or persons not involved in the response to the oil spill who should have been involved?
21. What have you (your agency) learned from the 1976 spill that will influence your response to another one? What will you do differently?
22. Do you have suggestions for the way the spill cleanup should proceed?
23. Do you have suggestions for the way the spill area residents should be dealt with?
24. Was the spill of 1976 a disaster in your opinion? Why/why not?
25. Was the river seriously affected by the spill?
26. Did any "good" come as a result of the spill and response?
27. What does the future hold? Will things get better, worse, stay the same? Will the response to a spill be different?

REFERENCES

- Anderson, Jon W., "Cultural Adaptation to Threatened Disaster," Human Organization, Vol. 27, no. 4, Winter, 1968.
- Barton, Allen, Communities in Disaster (Garden City: Doubleday, 1969).
- Council on Environmental Quality, National Oil and Hazardous Substances Pollution Contingency Plan, Federal Register, Vol. 40, no. 28, 10 Feb., 1975.
- Dalton, Melville, "Conflict Between Staff and Line Managerial Officers," American Sociological Review, Vol. XV, no. 3, 1950, pp. 342-351.
- Dynes, Russell, Organized Behavior in Disaster (Lexington, Mass.: D. C. Heath and Co., 1970).
- Molotch, Harvey, "Oil in Santa Barbara and Power in America," in Serge Denisoff and Charles McCaghy, eds., Deviance, Conflict, and Criminality (New York: Random House, 1972).
- Moore, Harry E., Tornados Over Texas (Austin: University of Texas Press, 1958).
- Moore, Harry E., Frederick Bates, Marvin Layman, and Vernon Parenton, Before the Wind, Publication 1095, Disaster Study #19, National Academy of Science--National Research Council (Washington, D.C.: Government Printing Office, 1963).
- Nash, A. E. Keir, Dean E. Mann, and Phil G. Olsen, Oil Pollution and the Public Interest: A Study of the Santa Barbara Oil Spill (Berkeley: Institute of Governmental Studies, 1972).
- Sjoberg, Gideon, "Disasters and Social Change," in George Baker and Dwight Chapman, eds., Man and Society in Disaster (New York: Basic Books, 1962).
- Slovic, Paul, Howard Kunreuther, and Gilbert White, "Decision Processes, Rationality, and Adjustment to Natural Hazards," in Gilbert White, ed., Natural Hazards (London: Oxford University Press, 1974).
- Texas A & M Research Foundation, Oil Spill Control Course, American Petroleum Institute Publication no. 4271, 1975.
- Wilson, Robert, "Disaster and Mental Health," in George Baker and Dwight Chapman, eds., Man and Society in Disaster (New York: Basic Books, 1962).